

# Municipal Journal

## And Engineer

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### PAVEMENTS AND SUBSURFACE STRUCTURES

#### Practice of Fifty-Seven Cities in Causing Pipes, Sewers and Conduits to be Laid or Repaired Previous to Laying Permanent Pavements—Obtained by American Society of Municipal Improvements

A SHORT time ago the American Society of Municipal Improvements obtained through its clearing house information from more than 50 cities concerning the practice of these cities in the way of laying and putting in good repair all subsurface structures, and laying all house connections with the same, and compelling public service corporations to do likewise with their pipes and conduits, before the laying of any permanent pavement on a given street. The information obtained—in most cases from the city engineers of the respective cities—has been tabulated and is presented herewith; it being impracticable to reproduce at length all the replies received.

It is seen that a majority of the cities have ordinances more or less completely covering the subject, and most of them make a pretence, at least, of having all underground structures in place and old ones repaired where necessary before laying new pavement. In some States there are State laws more or less adequately covering this point. A number of engineers stated that while such ordinances did not exist in their cities, there was no question but that they should be passed and enforced. In a number of the larger cities the replies stated that the public service corporations felt it to be to their own advantage to have all their subsurface structures in good condition immediately before the laying of a permanent pavement, because of the increased cost of obtaining access to such structures after such a pavement had been laid.

A number of the replies contained information, comments and copies of ordinances which were too extensive to be embodied in the table but which seem of sufficient interest to be given at some length.

The Chief Highway Engineer of Boston, Joshua Atwood, 3d, in commenting upon the laying of all house connections, even to unoccupied property, which is required by the Boston ordinances, states: "The law has been in effect some years and it was found that house connections laid to vacant lots did not answer the purpose some years afterward when a readjustment of lot line would be made; so that of recent years a great deal of discretion has been used by the various city departments as well as by public service corporations as to the matter of laying house connections to the property lines."

At Hartford, Conn., house connections are required to be laid, but Assistant City Engineer Roscoe N. Clark states: "The gas light company and the Board of Water Commissioners, which is a branch of the municipal government, are inclined to co-operate with the Street Board as far as possible in this matter. The Board of Water Commissioners in general disapprove of laying service pipes from their mains to the curb unless there is a prospect of their being immediately put in use. They urge as a reason for this that short dead-end pipes with no flow of water through them are bound to rust out within a

comparatively short time; which will necessitate their removal before the property, which they were designated to serve, has been built upon."

In Daytona, Fla., there is little trouble from house connections, both because the mains are to a large extent laid in the parkways, of which there is one 25 feet in width on each side of the 100-foot streets; and because the water and gas connections are generally not laid in dug trenches, but are driven through the sandy soil with wooden mauls, a cap having first been placed on the end of the pipe to enable the same to be driven without being filled with dirt.

In Cincinnati, Ohio, Mr. Robert Laidlaw, General Superintendent of Water Works, states that there is being enforced a law passed by the last Legislature giving the Director of Public Service the right to order all mains laid and lateral branches put in to the curb for all water and service pipe before a new street improvement is made; and on the refusal of the property owner to put in such branches the city can lay the pipes and assess the cost against the property, collecting it in the same way as taxes are collected.

The charter of the city of Milwaukee requires that no street shall be paved or repaved unless the water, sewer and gas mains be first laid in such streets and that "The Board of Public Works cause water and gas service pipes and house drains to be first laid in such street, at the cost of the property fronting such street, from the main sewer and water and gas mains in such street to the curb line on either side of the street, at intervals of not less than 20 feet along the whole length of such paved street, excepting at the street and alley crossings; and the Board of Public Works shall give notice to the owners or occupants of the property adjoining such paved street, by publication thereof for six days in the official papers, requiring them to do such work opposite their respective lots, according to a plan and specification to be before prepared and on file in the office of said board, showing the location and size and the kind and quality of material of such lateral sewers or drains and water and gas service pipes; and if such owners or occupants shall refuse or neglect to do the same before the paving of said street and within 10 days after the publication of such notice, the said board may procure the same to be done and charge and assess the expense thereof to the lots or parts of lots fronting upon such work."

Mr. H. N. Ruttan, City Engineer of Winnipeg, Manitoba, states that some years ago it was compulsory to carry house connections to the curb line where the property was not built upon, but it was found that not more than 10 per cent of the connections so laid were ever used, they not being in the exact position required by the property owners when the buildings were erected. The connections were very expensive and

laying them in advance did not seem to have any effect on the cutting up of the pavement.

In Pawtucket, R. I., according to City Engineer George A. Carpenter, the city sees that all services are in good condition, and if not makes them so before putting down any permanent pavements.

In Elmira, N. Y., the charter provides that conduits and mains and renewals must be laid previous to paving, three months to be given in which to do the work, failing which the city may do it and assess the full cost on the companies. In 15 years this city has had to lay but one telegraph conduit of about 875 feet because of the failure of the company to do so. All iron pipe water and gas services are renewed if 12 years or more old. Ten days' notice for service connections is given, after which the city does the work and assesses the cost.

City Engineer Robert Hoffman sends the following description of the procedure in the city of Cleveland, Ohio: "The first step in beginning legislation to pave a street is a resolution by the City Council declaring the necessity for such paving. In order to obtain a proper record of the beginning of such legislation, it is the practice to secure from the Councilman representing the district in which the paving is to be done a written request asking the City Engineer to begin proceedings for such paving. Before the declaratory resolution above referred to is introduced in the Council the request signed by the Councilman is submitted to the various assistant engineers in charge of sub-departments for their approval, so as to insure that the street to be paved is properly dedicated to public use and accepted by the city; also to insure that the street has been properly sewered. After the proceedings for the legislation have been begun and in ample time before any contract for the paving is let, notices are sent by the paving department to the various sub-departments of the city interested in doing work in such a street in advance of paving, and also to the various public corporations which might have occasion to do work in the street in question. The notices above referred to are supplied with a return form, upon which it is expected will be noted the exact date when any contemplated improvements will be completed. In this manner the house connections for both sewer and water are placed to the curb for all properties requiring the same in advance of the paving. The public service corporations are given an opportunity to place wires underground, doing any pipe-laying or making of service connections in advance of the actual beginning of the paving construction. The laying of sewer and water connections to the curb is done by city departments and charged to the property owners, the employees in charge of these departments exercising their own judgment regarding the necessary number and size of such connections. This method has been fairly successful in preventing the tearing up of pavements for purpose of making underground improvements, but even with all the care taken conditions still arise making such tearing up essential.

"The completing of the paving legislation requires considerable time. For instance, should paving legislation be begun after about May 1, it would be impossible to do the paving even the following year, but for any legislation begun previous to about May 1, the paving can be done the following year. For this reason ample time is secured for the sending out of all notices above referred to, in order to give all parties interested an opportunity to complete any contemplated improvements in the streets in question."

In Chicago, according to Mr. John B. Hittell, Chief Engineer of Streets, corporations are notified of proposed paving at the time the assessment is confirmed. At the same time a tracer is sent to the various departments of the city having underground structures, which secures information as to whether the underground work has been laid. If a sewer is necessary an estimate is ordered and the proceedings carried through. If the water main has not been laid, it is built by a special assessment, except in districts which pay a revenue, in which case it is paid for by the city. Water and sewer house connections are built by special assessment, unless the number needed is less than 10, in which case the owners of the property not connected are notified to

have them built before the pavement is laid. Neither these nor the structures of the public service corporations are compulsory, but they are generally put in to save the greater cost of doing the work after the permanent pavements have been constructed.

In Morristown, N. J., several months before any resurfacing or repaving is done circular letters are sent to the various corporations describing the street to be paved and the kind of pavement and advising them, if they contemplate any change or additions to their subsurface construction, to make them at once, as after the pavement has been laid no permits for opening the street, except for the most extraordinary and urgent reasons, will be granted for — years.

The law of Syracuse, N. Y., referring to this subject requires that whenever Council orders any street to be paved or repaved, where water mains, sewer inlets, gas mains, heating mains and electrical subways and conduits have not been laid, or where those already laid are defective or of insufficient capacity or improperly located or for any other reason are condemned, Council must require these to be laid and all connections to be put in to the curb at such distances apart as the Commissioner of Public Works may prescribe. The cost of sewer inlets is included in and collected as a part of the cost of the paving improvement. If the sewer is not in or should for any reason be reconstructed, the Common Council must have it constructed or reconstructed in the same way as in the case of other sewers ordered by Common Council without petition of the property owners. Notices to the private companies specify the time (which cannot be less than five days from the date of mailing the notice) in which the work is to be completed, and if it is not done the Commissioner of Public Works has the power to do the work and collect the money from the company.

In Asheville, N. C., the Aldermen order all property owners to carry water and sewer connections from the nearest accessible mains to the property whenever a street is to be paved, and in case this is not done within 15 days the city does the work and the cost becomes a lien upon the property. Apparently no effort is made to have public service corporations do any work on their conduits.

In Titusville, Pa., it is the general intention and practice to lay all sewers at least one year in advance of paving operations, according to Mr. Herbert A. Holstein, City Engineer. At times, however, this has seemed to be impossible and the sewer has been laid immediately before the paving. The gas company renews all defective mains, and uniformly reconstructs all old services to the curb box and puts in new services to vacant lots 30 feet apart, in advance of paving operations, without any urging by the city. The water department, as soon as notified that a pavement is contemplated on any street, immediately proceeds to renew all water services to the curb box, and to put in connections every 30 feet in front of all vacant properties. These services, like all others in the city, are put in without cost to the property owner. Sewer connections are carried to the curb at the time of laying all new sewers, these being placed opposite all buildings and at intervals of 30 feet along vacant property. Where sewers were laid before this practice went into effect, property owners were notified to have the connections laid. "With the enforcement of this plan, we have little or no trouble on freshly laid pavements with this question. Previous to 1905, although this ordinance was in effect, it was not enforced as it should have been, and we have one street which has been badly damaged by tearing the same up for sewer, water and gas connections within one year after the same was laid."

The State of New Jersey in 1899 passed a law providing for sewer and water connections to all lots. This law is as follows: Chapter 189 of the State Laws of 1899.

An act concerning cities, etc.

"Whenever in any city in this State any ordinance shall be adopted or contract made by such city for the pavement or repavement with asphalt, Belgian blocks, macadam or other hard and durable pavement, of any section or sections of street or streets, it shall and may be lawful for the Board of Aldermen, Common Council, or other governing body of such city to provide by ordinance: First, that all owners or occupants of buildings along the line of said proposed pavement, or other persons or corporations possessing or controlling the right to lay wires,



pipes or other conduits in the said streets who shall desire to make connections, lay or relay pipes, wires or other conduits, or make repairs under the roadway of any section or sections of any street or streets proposed to be paved as aforesaid, shall be required to complete all work in the premises within 90 days from date of approval or final adoption of said ordinance hereby authorized and that after such proposed pavement shall have been laid, the said pavement shall in no manner be disturbed for the space of at least five years thereafter for the laying or relaying of pipes, wires or other conduits, or making repairs, without express permission first granted in writing by the Superintendent of Streets or other person or body having charge of the streets in any city or by resolution of the governing body of said city and upon such terms as may be stated in such written permission or resolution.

Mr. Wm. A. Howell, Engineer of Streets and Highways of Newark, N. J., states that "Until within a year or so the public service corporation controlling the gas companies of Newark

has declined to make gas connections at vacant lots unless the owner would guarantee payment in advance of said connection. Our Board of Public Works has been besieged with applications from property owners asking permission to make cuts in pavements where the lot had been purchased from the owner of a large tract of land who had previously declined paying the public service corporation for the connection. After much thought on the matter it was finally determined by the Board of Public Works to guarantee to the public service corporation payment for all gas connections made at vacant lots where the owner evaded payment, the cost of said connection to be added to the cost of paving assessment on the property in question." This plan seems to have worked well and eliminated the trouble from this service.

The Ohio State Legislature last year passed a law giving to

### SUBSURFACE STRUCTURES AND STREET PAVING

CITY	ARE UNDERGROUND STRUCTURES ATTENDED TO BEFORE PAVING THE ROADWAY—		House Connections for all Lots?	REMARKS
	By Corporations?	By City Depart- ments?		
Boston, Mass.	Statute; enforced	Statute; enforced	Statute; not enforced	House connections to vacant lots not generally laid. New pavements not opened for two years without permit from Mayor.
Pawtucket, R. I.	Requested. No law	Yes	Water and sewer	Considering advisability of making all sewer connections when laying sewer.
Hartford, Conn.	No law	Yes	Sewer, yes.	Unused water connections rust out. Six months' notice of paving. No excavating for 3 mos. before paving without special vote of Bd. of St. Comrs.
Corning, N. Y.		Yes	Water, no.	Owners of property, whether built upon or not, required to lay gas, water and sewer connections to curb.
Elmira, N. Y.	Yes	Yes	Yes	If not done by corporation after three months' notice, done by city.
New York (Manhattan)	Requested	New ones laid	No	Board of Estimate and Apportionment do not authorize paving until sewer and water mains are laid.
Rochester, N. Y.	Yes	Yes	Yes	Water mains, house connections and other underground work included in same contract as pavement; work included in pavement guaranty.
Syracuse, N. Y.	Yes	Yes	Yes	Sewer connections to all lots included in sewer contracts. See article for full information.
Troy, N. Y.	Requested	Yes	Yes	
Yonkers, N. Y.	Generally, by request	Yes	Not compulsory	Unsewered streets may be macadamized. \$25 extra charged for water and sewer connections in permanent pavements.
Asbury Park, N. J.	Yes	Yes	Yes	Ordinance forbids tearing up new pavements for five years.
East Orange, N. J.	No law	Yes	No	No ordinance.
Elizabeth, N. J.	"Insisted on"	Usually	Sewer	Sewer connections to curb laid at same time as sewer.
Hoboken, N. J.	Yes	Yes	No	Corporations notified of paving, after which no permits for openings granted for — years.
Jersey City, N. J.	Requested	Yes	Sewer	See article for further information.
Morristown, N. J.		Yes		No regulation before 1910. Now no openings allowed in permanent pavements for 5 years.
Newark, N. J.	Yes	Yes	Yes	Sewer connections laid to houses when sewer built.
Paterson, N. J.	Yes	Yes	Yes	In extending sewer system, house connections carried to curb at all lots.
Ridgewood, N. J.	No		No	If property owner fails to lay sewer connection for each 40 feet front, paving contractor lays it and collects cost with paving bill against property.
Rutherford, N. J.	Generally	Yes	No	Borough, and no powers to require it. 12 miles of permanent paving.
Erie, Pa.	Yes	Yes	Yes	Sewers under sidewalk where possible. No authority over corporations, except to refuse opening permits.
Norristown, Pa.	No laws		No laws	Sewers laid a year in advance, when possible. See article for further information.
Pittsburg, Pa.	Requested	Yes	Sewer	Legal power to enforce doubtful, but work always done when ordered.
Titusville, Pa.	Yes	Yes	Yes	Required of property owner; generally done by city and charged to owner.
Williamsport, Pa.	Yes	Yes	Yes	House connection carried to curb. Charged to owner when he connects with it.
Asheville, N. C.	Yes, voluntarily	Yes	Yes	Subject under discussion.
Charleston, S. C.	No laws			Must be done by owner; otherwise by city at his expense.
Brunswick, Ga.			Water and sewer	Mains in 25-foot side parkways. Water connections driven under sidewalk (soil sandy).
Valdosta, Ga.				Owner notified to substitute lead for any iron water connections, but no power to enforce it.
Daytona, Fla.				Sewer and lead water connection required for each 50-feet front.
Birmingham, Ala.	Yes, voluntarily	Yes		Street opening permits refused for two years after paving.
Montgomery, Ala.	Yes	Yes	Water, sewer & gas	Connection laid to curb by city, charged to owner. See article for further information.
Cincinnati, O.	Yes	Yes	Yes	Companies usually comply with request.
Cleveland, O.	Yes	Yes	Yes	Corporations and owners generally lay pipes, etc., before paving in their own interest.
Columbus, O.	Requested	Yes	Water and gas	Same as Chicago.
Chicago, Ill.	Notified of paving	Yes	Owners notified	Same as Chicago; also threaten no opening permits for 5 years, but find it hard to enforce latter.
Moline, Ill.	Notified of paving	Yes		Street not paved till gas, water and sewer pipes are in. Connections must be made by owners to each.
Grand Rapids, Mich.	Yes	Yes	Generally	Same as Milwaukee.
Milwaukee, Wis.	Yes	Yes	Yes	Owners required to lay house connections. Water company can be required to lay certain amount, but generally lay what is necessary, for its own interest.
Racine, Wis.	Yes	Yes	Yes	Storm sewers built as part of paving. Owner pays for connections.
Des Moines, Ia.	Yes	Yes	Yes	House connections required only to lots built on.
Knoxville, Tenn.	Yes	Yes	Yes	Owners required to renew water service pipes, if necessary.
Memphis, Tenn.	Generally	Generally	No	Companies voluntarily overhaul pipes and carry connections to curb. No opening permits for one year.
Lawrence, Kan.	Only voluntarily	Yes	No	Connections under sidewalks required before construction.
Lexington, Mo.	Generally voluntarily			All underground work must be repaired and tested, or renewed. Services to water, sewer and gas mains required every 25 feet in business and 50 feet in residence sections.
Meridian, Miss.	Yes	Yes	Yes	Gas company lays to curb. Water pipe connections laid by "improvement districts," lead in 3-in. tile.
Austin, Tex.	Yes	Yes	Yes	Owners required by state law.
Hot Springs, Ark.	Yes	Yes	Yes	Conduits of telephone, light and power companies required in ahead of paving.
Little Rock, Ark.	Yes; voluntarily	Yes	Yes	Connections in new pavement under very strict conditions.
Chickasha, Okla.	Yes	Yes	Yes	Gas the only private pipe company. Telephone conduits laid in advance of construction.
Wagoner, Okla.	Yes	Yes	Yes	
Salt Lake City, Utah.	Yes	Yes	No	
Aberdeen, S. D.			Yes	
Boise, Ida.	Requested			
Calgary, Canada.	Yes	Yes	No	
Toronto, Ont.		Yes	No	
Winnipeg, Man.	Requested	Yes	No	

the Director of Public Service of certain cities the right to order all mains laid and lateral branches to the curb put in before any new street improvements, and giving the city the right to do this work and assess the cost against the property in case the owners should refuse or neglect to obey the order.

Since preparing the table we have received information concerning the practice of the town of Brookline, Mass. That town, before doing any paving work, always makes an effort to persuade the companies controlling mains and conduits to satisfy themselves that they are sufficient in capacity for at least five years to come. It is found, however, that the companies either fail to see the necessity for increasing the capacity or underestimate the future demands, and sometimes within a year ask the privilege of opening the new pavement. As to municipal sewers and water mains, those laid by the town are always attended to well in advance of the paving; but the water mains controlled by the Metropolitan District and the sewers by the Metropolitan Department are not always so taken care of. There is no policy concerning house connections, and they are not required by ordinance; but preceding some recent paving the town carried sewer and drain connections to the property line at 25-foot intervals.

In New Orleans the companies owning mains or conduits for their own protection usually make repairs known to be necessary prior to the laying of new pavements. The Sewerage and Water Board lays sewers and mains ahead of new pavements and the city constructs subsurface drainage in connection with paving. The Board also advises all owners to apply for water and sewer connections prior to paving. For water connections no charge is made; for sewer connections the charge is \$25 in residence sections and \$50 in business sections, which will be refunded later. Unless a connection is to be used within six months it will not be laid, as experience has shown that connections opposite vacant property usually are found to be undesirably located, and frequently are never used, but constitute a perpetual menace to the system.

## GAUGING SEWAGE FLOW

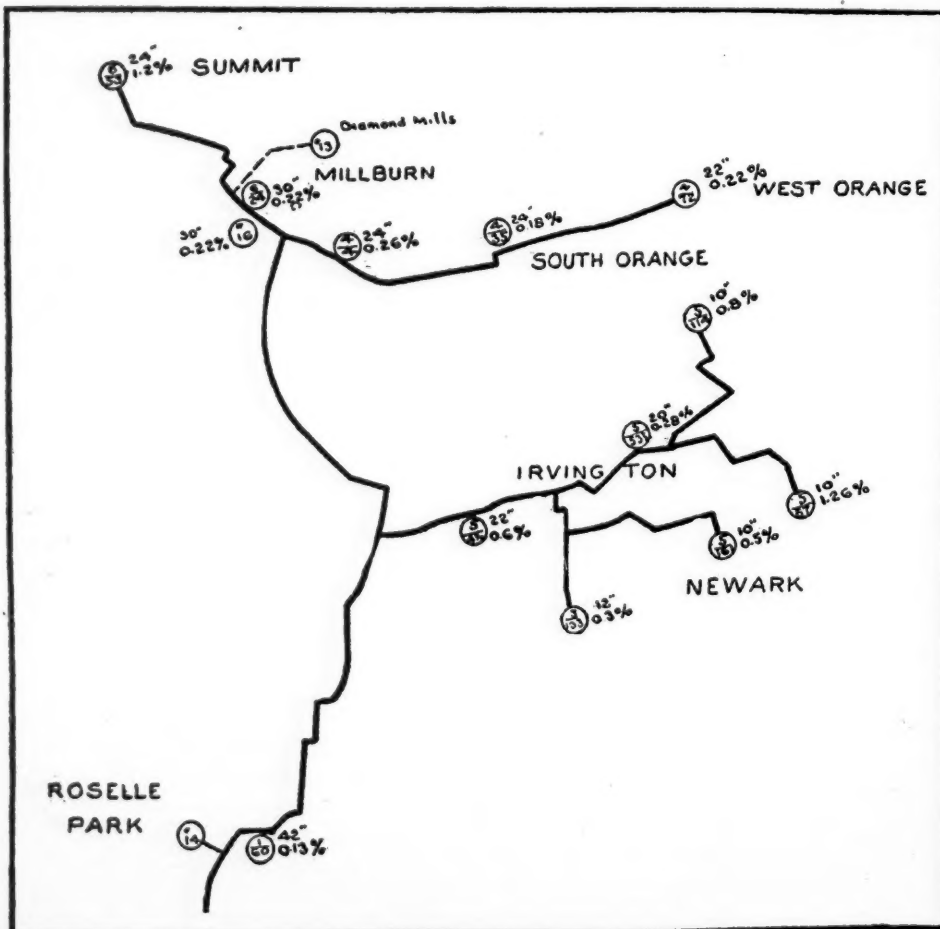
### On New Jersey "Joint Outlet" Sewer—Dibble and Richard Gauges Used—Description of Each and of Gauge Chambers

As many of our readers are aware, there was constructed seven or eight years ago a joint outlet sewer for receiving the sewage from eleven New Jersey municipalities and discharging the same in Newark Bay at the northern end of Staten Island. In connection with this there were many unusually interesting features, both engineering and financial. Among the latter was the best method for distributing the cost of first construction and of maintenance of the outlet, main and branches. Without going into the details of the method finally adopted it may be said that each of the municipalities was allotted a definite capacity of sewer, defined as a certain number of gallons per day, which it possessed and could not only use but could sell in whole or in part should it so desire. A number of the corporations have sold a portion of their rights in the sewer, Millburn township having sold to the Diamond Mills a part of its capacity and South Orange township having secured a share in the sewer from several of those which originally joined in its construction.

This method of allotting capacity in the sewer requires a frequent or continuous measurement of the amount of sewage discharged by each municipality in order to make sure that it is not exceeding its rights. For this purpose there were originally constructed a number of brick chambers in each of which was set a Dibble recording gauge for securing continuous records of the height of the sewage; from which heights the capacity of the sewer could be determined by formula. However, provision was made for inserting weirs in the sewer by which the accuracy of the formulas—or perhaps it were better to say their applicability to the sewer under consideration—might be ascertained. In his report published in 1905 the chief engineer of the outlet sewer, Mr. Alexander Potter, thus describes these gauges:

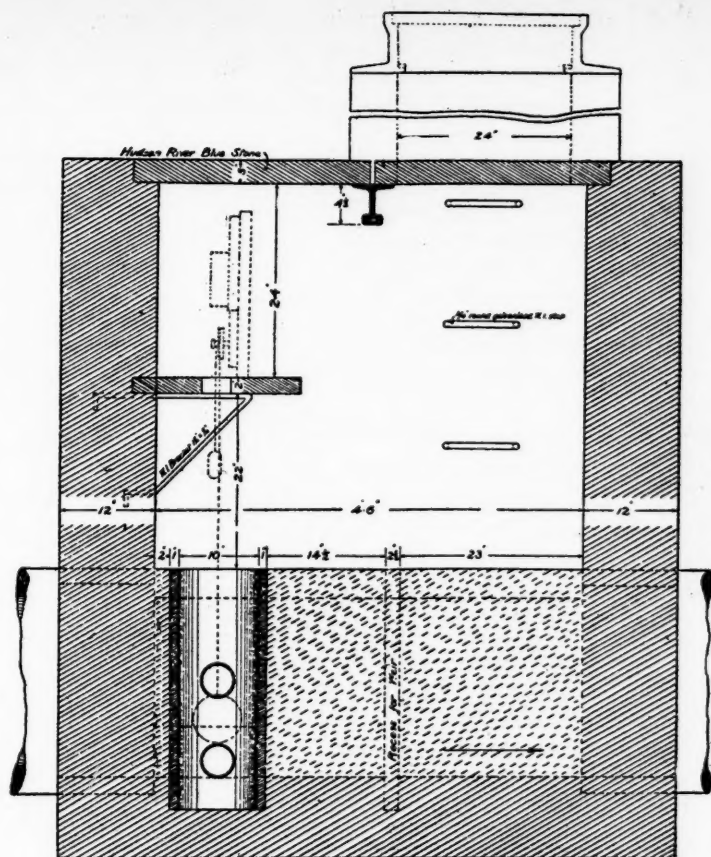
"To one side of the sewer and communicating with it by 4-inch pipes is placed an 8-inch upright vitrified pipe, the duty of the 8-inch pipe being to present the top of the flowing sewage in the main, unaffected by the current. Upon the surface of the sewage in the 8-inch upright pipe rests a tinned copper float 6 inches in diameter, which, being properly counterweighted, transmits by suitable mechanism the rise and fall of the surface of the sewage to a hand on the lower dial of the recording gauge showing the depth of sewage, and also in the upper dial to a pen which marks the depth on a record sheet moved by clockwork, the sheet being divided into hours and days for one week, so that permanent record of the sewage depth at any time during the week is secured. There are at present 13 recording gauge chambers built upon the sewer, and one of the duties of the inspectors is to visit each gauge chamber weekly, inspect the working of the gauge, wind the clock, remove the record sheet and insert a new one.

"The gauges are covered with removable waterproof canvas covers and to prevent unauthorized

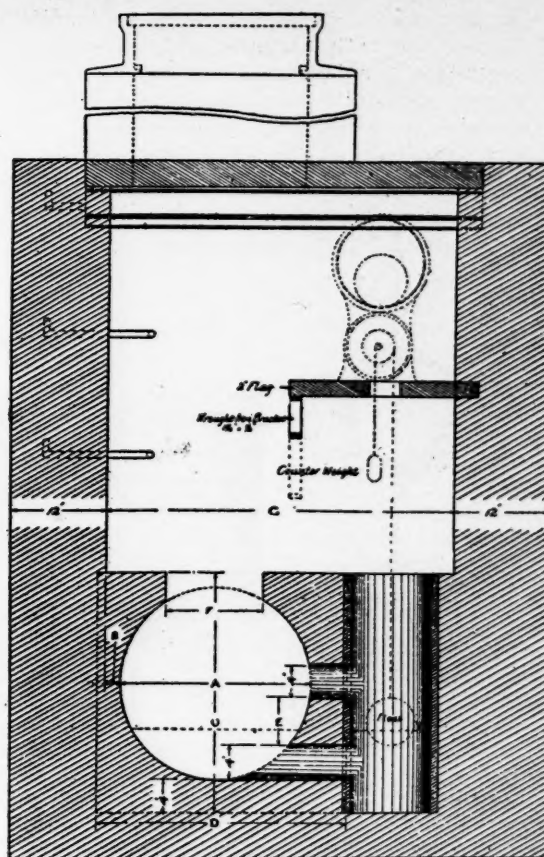


SKETCH OF JOINT TRUNK SEWER  
Showing Location of Weir and Gauge Chambers, January, 1910





SECTION AB



SECTION CD

persons from entering the chambers and perhaps meddling with the delicate mechanism of the clocks, which require great care in adjustment, the cast-iron cover of the chamber is made with a positive locking device controlled by means of a special key."

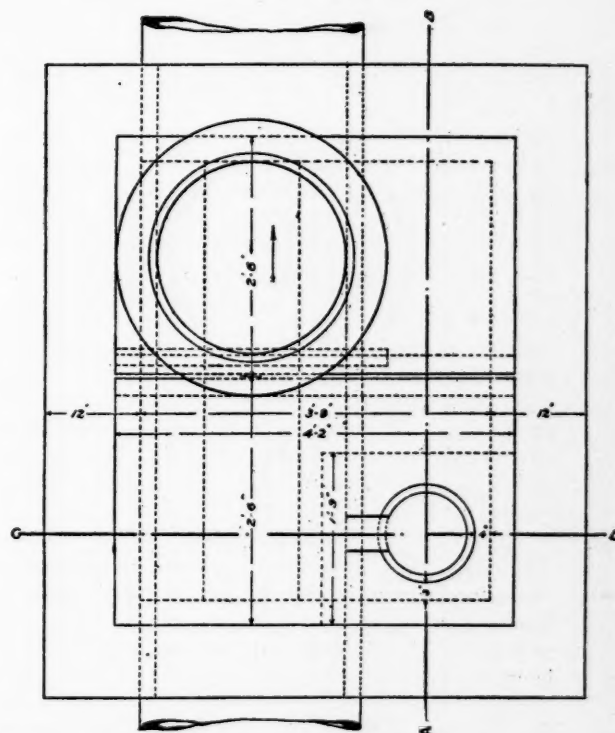
From these sheets not only the computation of the flow coming from the various municipalities is made (the gauge chambers were so located that the flow from each municipality was recorded on a separate gauge), but it is also possible to judge from them the conditions of various matters relating to the system and to detect many sources of surface and ground water infiltration.

Owing to the fact that the 1905 report was exhausted by an unexpected demand for the same and that new developments and information concerning the outlet works have been collected since its publication, Mr. Potter was authorized to republish the report, together with some additional matter, and this report has recently come from the press. In this, further information concerning the gauging of sewage flow is given as follows:

"Since the completion of the joint trunk sewer, continuous recording gauges have been in operation to determine the sewage flow from the various municipalities. The sketch gives the general location of these gauges, and also other data from which the calculations of sewage flow are obtained.

"At the outset, the joint meeting purchased a number of Dibble recording gauges for this service. Considerable trouble was experienced with these gauges, due to several causes. First, the float which was confined in the well would strand upon slight accumulation of deposit in the bottom of the well, and, during a protracted rain, when the sewer would run more than full for a short period, the float would become dislodged from the well or be loosened from the pulley, thus putting the gauge out of commission until the next visit of the inspector. Another disadvantage of the Dibble machine was the circular dial and the difficulty in using a planimeter in determining the volume of flow.

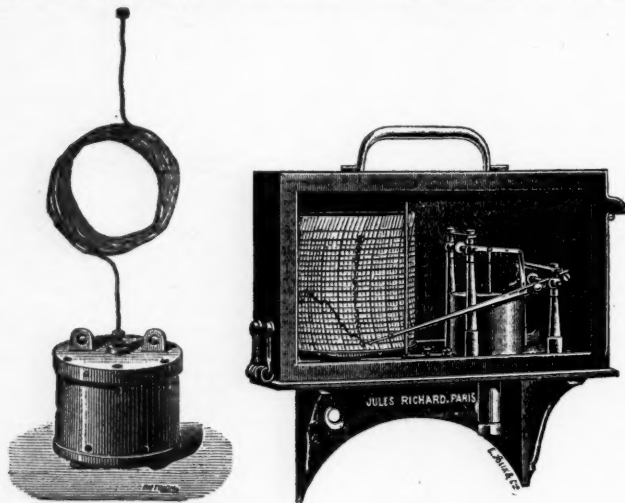
"The Richard gauge eliminates most of these difficulties as



RECORDING GAUGE CHAMBER, JOINT TRUNK SEWER

the operation is not affected by the sewer's running more than full. The Richard gauge is illustrated in the cuts presented herewith, and it consists of a cast-iron box with holes in the sides. Experiments with the first machine sent by the Richard people indicated that the holes were too small for sewerage work, as the silt and solid matter in the sewage clogged the holes, preventing free communication between the water level inside and outside of the box. Within the box is placed a rubber bag half filled with dry air. It is connected with the recording or dial gauge (see cut) by a small copper tube. The

cast-iron box is enclosed in a well hole at the side of the sewer, the well hole being connected with the sewer by means of a 4-inch pipe at the bottom of the sewer. The pressure of the air, and consequently the depth of the liquid, is recorded or indicated on the gauge. The rubber bag in the box acts only as a separating wall. There can be no condensation on the inside and consequently the air remains dry. The rubber cannot become deteriorated on account of the equal inside and outside



RICHARD GAUGE

pressures. We have had a gauge in use for some two years without the rubber bag becoming injured.

"As the air in the rubber bag is not in contact with the liquid, it cannot be dissolved and the readings, therefore, are comparable and regular.

"The box containing the clock and other recording mechanism consists of two parts: the box proper and a removable side, which is securely fastened to the box by means of clamps. Between the removable side and the box proper a rubber gasket is inserted, insuring a damp-proof apartment for the operating mechanism.

"Four additional gauges of this type have been ordered, and should be placed in commission by the time this report is in print."

### PARK RESERVATIONS

THE Metropolitan Park Commission of Providence, whose territory includes most of the little State of Rhode Island, has prepared a map of the Metropolitan district, showing a proposed system of parks, boulevards and public reservations, accompanying this in their sixth annual report with a statement of the principles upon which the reservations were designed. These principles and the description of the locations, as most tersely stated by the Commission, are as follows:

#### Public Reservations

These properly include:

A. The places which are of greatest present value for public resort; where open spaces are most necessary; or which deserve preservation for their natural beauty, attractiveness, or historic interest.

B. The areas which are ill-adapted or unduly expensive for development for commercial or residential purposes, or are otherwise destined to be plague spots or slums. (Incidentally, the setting aside of such picturesque spots for park improvement will greatly increase the value of their respective neighborhoods; provide desirable residential places in their vicinity; and add to the valuation of whole district.)

In accordance with these principles, reservations are proposed as follows:

- (1). Steep and rocky hills, or ground which is very broken or uneven, especially if wooded.
- (2). Ponds, lakes or bay shores.
- (3). Valleys of little rivers.

- (4). Beaches and commanding outlooks on Narragansett Bay.

#### Connecting Parkways

The principal considerations are:

- (1). Directness in giving access from one reservation to the next.
- (2). Value as highways to connect populous districts which now lack "cross town" accommodations, or to give handy access to the more important "State Roads."
- (3). Beauty of location.
- (4). Avoidance of valuable property.
- (5). Ease of grades.
- (6). Development of property through which they may pass into valuable building sites.

### ROAD TERMINOLOGY - BITUMINOUS BINDER

Editor of MUNICIPAL JOURNAL AND ENGINEER,

239 West Thirty-ninth street, New York.

Dear Sir: In my communication published in your issue of August 3, I referred to the terms "bituminous binder" and "bituminous cement" as being descriptive of the same class of material. This of course referred to the pure or nearly pure bitumens used for "binding" or "cementing" together particles of mineral aggregate in "bituminous mortar" or "bituminous concrete." This use of the term "bituminous binder" in this connection, however, is unfortunate as such use of the term is antedated a quarter of a century in connection with "bituminous binder" (mixture of stone or gravel and bitumen) used as the intermediate or "binder" course between the concrete base and asphalt surface of asphalt pavement, as has been the custom for at least 40 years. I therefore suggest that the use of the term "bituminous binder" be confined to this early use and that, referring to the pure or nearly pure bitumen, the term "bituminous cement" be used exclusively.

If this dual use of the term is proper, the following would be a proper definition:

"Bituminous binder in bituminous pavement construction is composed of a mixture of stone or gravel and bituminous binder spread between the foundation and wearing surface."

To recapitulate, my suggestion for terms properly describing the several materials referred to is as follows:

"Bituminous dust layers" are bituminous compounds which are liquid or semi-liquid and generally viscous at all normal temperatures and have the property of absorbing and holding or "laying" road dust.

"Bituminous cements" are bituminous substances which are solid or nearly solid at all normal temperatures; which require heating to liquify sufficiently to apply to road surfaces or mineral aggregate and which are not too brittle to serve as a true "cementing" medium.

"Bituminous binder" is a combination of "bituminous cement" and sand or other equally fine mineral aggregate.

"Bituminous concrete" is a combination of "bituminous mortar" and crushed stone or other coarse mineral aggregate.

Bituminous materials "harden" and do not "set" on exposure to atmospheric influences.

"Bituminous binder" is the mixture of bitumen and stone or gravel about one inch in size spread and rolled between the foundation and wearing surface of asphalt or other bituminous pavements.

"Bituminous macadam." On account of the looseness and misuse of this term in the past, and as it does not clearly define any specific form of construction in general use, the abandonment of the term is suggested.

"Tar macadam" is a road construction made like "macadam" of crushed stone or gravel spread in layers, each layer of nearly uniform size (the coarsest at the bottom and the finest at the top) one or more layers of which are coated or poured with "tar" and the several layers compressed together by rolling.

"Oil macadam" is a construction the same as "tar macadam," except that viscous oil is used instead of "tar."

"Pitch macadam" is the same as "tar" and "oil" macadam, except that "pitch" is used instead of "tar" or "oil."

"Asphalt macadam" is same as "tar," "oil" or "pitch" macadam, except that asphalt cement is used instead of "tar," "oil" or "pitch."

Doubtless this list could be advantageously added to.

It is hoped that this or some equally as good or better system for the use of terms will be generally adopted, to the end that when the terms are used they will mean a definite, specific material or form of construction, and not, as the terms are now loosely used, mean almost "any old thing."

Yours truly,

GEORGE C. WARREN.



# Municipal Journal and Engineer

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AUGUST 24, 1910.

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## No-Seat-No-Fare

SEVERAL cities have recently adopted or considered adopting an ordinance providing that a street car company must provide every passenger with a seat, and that it can collect no fare from those not so provided. Among others, Syracuse, N. Y., has been considering the matter and Council instructed one of its committees, in studying the inadequacy of the street railroad facilities, to look into the advisability of adopting such an ordinance. So considerable was the interest taken in the matter by the citizens that about 7,000 signed a petition to Council to pass a no-seat-no-fare ordinance. To give the subject the thorough investigation which they believed it required the committee visited Trenton and Jersey City, N. J., each of which has such an ordinance. Trenton has 29 miles of city line track and 42 miles of suburban track extending to other cities and villages. On these lines the traction company is operating 76 cars upon

schedules varying from four to forty minutes, all of which are small single truck cars seating 28 passengers. The committee found these crowded way beyond their possible seating capacity, in some instances over 100 passengers being found on a car. They found no effort made to enforce the ordinance and such citizens as they talked with told them that it was the general sentiment that the ordinance was a complete failure and had resulted in no benefit or improvement whatever in the service.

In Jersey City a similar ordinance was passed three years ago, but the railway companies have continuously resisted its observance, with apparent success. A case involving the right of the city authorities to pass such an ordinance is now before one of the higher State courts. The Mayor informed the committee that he believed the no-seat-no-fare ordinance would ultimately fail to give the anticipated relief. The only attempt at its observance which the committee saw was the intimation to passengers that those who did not wish to pay for a standing ride could step out and wait for a car in which they could find a seat.

The idea embodied in the no-seat-no-fare ordinance is, of course, to compel the railroad company to furnish a sufficient number of seats for all passengers; and this in most instances would require a large addition to the rolling stock. Even if this addition were made, however, and the cars were run at as frequent intervals as it is practical to run them, we doubt whether the people themselves would permit the enforcement of the law. Should the employees of a large department store or factory be waiting for a car immediately after the blowing of the whistle, it would take more than the moral or physical persuasion of the average conductor to prevent more of them getting on the first car which came than there was seating capacity for, even though another car were but a block away. Should gates be provided in the cars which would be closed as soon as all seats were occupied, a louder protest would go up than is now occasioned by the necessity for standing during what are known as the "rush hours." It does not seem to us that any such law can be enforced, whether or not Councils have the power to enact it.

## Washington's Water Filters

CAPTAIN HANNUM has recently reported concerning the water works of the District of Columbia, and among other things gives some figures concerning the operation of the filters during the year. He reports that the bacteria have been reduced from an average of 6,820 per c.c. in the reservoir to an average of 143 in the filtered water reservoir; and that the average turbidity has been reduced from 18 parts per million to one part. The actual number of bacteria in the city water varied from 2,800 to 3 per c.c., while the number in the river water ran from 170,000 to 37. The average reduction by months varied between 99 and 94 per cent. There were filtered during the year 21,605,440,000 gallons, or an average of 59,190,000 gallons per day. During the year 15,505 cubic yards of sand were washed and 16,876 cubic yards were changed in the filters.

The amount of purification, and especially the number of bacteria occasionally present in filtered water, as given in this report, should not be considered satisfactory, and probably is not, although the statement made to this effect in the report does not seem to take the matter very seriously. Comparing this with the Harrisburg filters (see issue of Aug. 3), we find in them a bacterial efficiency of the plant of 99.68 per cent. In the filtered water at Harrisburg the average number of bacteria was 17, the maximum was 628 and the minimum 1. In Washington the maximum number was four times as great and the average more than eight times as great. In view of the fact that typhoid has continued as mildly epidemic ever since the operating of the filter plant, and that during the week ending August 6 there were a total of 45 new cases, it would seem as though the tendency of the Washington authorities to consider the water supply as in no wise responsible for any of these cases is not justified, and some determined effort should be made at once to improve the efficiency of the filters.

## AUTOMOBILE FIRE APPARATUS

### Opinions of Two Chiefs Concerning Efficiency and Economy

#### —Better Than Horses for Hills and Snow—

#### Cost of Operation.—Other Data

SEVERAL papers were read before the convention of the International Association of Fire Engineers at Syracuse giving the opinions of fire chiefs concerning the use of automobile fire apparatus. Among these were one by Chas. S. Allen, chief of the fire department of Trenton, N. J., and another by Frederick G. Reynolds, chief of the fire department of Augusta, Ga.

Chief Reynolds stated that his department has had a Webb auto engine in commission since Oct. 6, 1909, since which time it has responded to 109 alarms without a single failure from any cause. On the night following its arrival, before it had been tested, it ran  $2\frac{1}{2}$  miles to a fire and had 1,200 feet of hose stretched in less than six minutes; and in the chief's opinion saved at least \$10,000 to \$15,000 worth of property at this one fire. Later, at a cotton mill fire, this engine played two  $1\frac{1}{2}$ -inch streams for three-quarters of an hour without any change in pressure, obtaining high pressure immediately through 1,500 feet of hose; and it is the chief's opinion that the quick connection and instantaneous high-pressure saved an adjoining mill from total destruction.

Recognizing the efficiency of the machine as a hill climber and distance coverer, an adjoining community  $2\frac{1}{2}$  miles distant, the road to which is on a 10 to 11 per cent grade, arranged to pay \$2,500 a year to the city if it would send the auto apparatus in response to calls. Says the chief: "I become more wedded to the idea that for long or short distances, hill climbing, through sand and clay, the problem of 'getting there' is practically settled by the auto fire apparatus."

The advantages he finds are economy, speed, and territory covered, and ability to remain under a shower of sparks which would require the removal of the horses and possibly the consequent destruction of the engine by fire. Concerning economy, he states that an auto engine dispenses with three horses to an engine and two horses to a hose wagon, a total of five horses costing \$1,500. Moreover, the driver of the car handles the engine at the fire, if needed, thereby dispensing with the services of the engineer, stoker, driver of the engine and driver of the hose wagon. Augusta has not decreased the force, however, but has retained these men in the company, adding them to the fighting force. On account of the speed, an auto engine is believed not only to reach a fire quickly, but to cover at least three times as much territory as a horse-drawn apparatus.

Chief Reynolds considers the 6-inch pneumatic demountable rim tire the best. He has not had a single mishap with these while responding to fires, and the total expense for tires to date, including renewals and repairs on two large machines and a chief's car, has been only \$200. He recommends electric headlights which can be lighted by simply pressing a button on leaving the house and the current shut off on reaching the fire.

He states that one gallon of gasoline, at 12 cts. a gallon, will run the engine at high speed 8 to 10 miles. While pumping two streams of water it will require from 7 to 10 gallons per hour, according to the volume pumped. He does not find it necessary to have an expert for handling the cars, but that any cool, sober man with ordinary common sense can handle them after twelve one-hour lessons. All of the recent accidents to auto fire apparatus he believes were due to too high speed or over ambition of inexperienced drivers.

Chief Allen in his paper describes some of the objections to auto apparatus. The first and most serious of these in his opinion is the excessive weight of load which is now being carried on pneumatic tires, the various auto engines weighing from 8,000 to 9,000 pounds loaded, which is in his judgment too much for this kind of tire. The pump problem also he does not consider as having been finally and satisfactorily solved.

The various types now used on autos are not as satisfactory as we would like, and we must admit that weight and space are two important factors to be considered in the construction of an auto engine. The ideal pump for this work should be light and compact; of large capacity, and so geared to the motor that the power may be applied as direct as possible, and one requiring the least possible energy to operate, as under present conditions we find no spare energy when pumping up to full capacity. While our present pump has given us excellent service and no trouble, yet I feel that the present types of pumps used can and will be improved upon in the near future.

The desire of some departments to have the auto engine equipped with large, heavy chemical tanks in addition to its present load is wrong, and should be discouraged in every case. You cannot carry the entire equipment used at a fire on one piece of apparatus and do it safely, and I might say such a combination does not work well, as the chemicals are wanted in front of the building and the engine should be at the hydrant, connected and ready for immediate use should the chemicals fail. Therefore, I do not recommend such a combination.

In making a comparison as to the cost of horse and auto apparatus, Chief Allen gives the figures for two companies, one an auto company with a crew of seven men, the other an engine company with a crew of nine men, both companies located in the same district and doing the same work. The supplies and repairs for the auto company for a period of ten months amounted to \$151.60, and the salaries of the seven men to \$5,770; a total of \$5,921.60. The supplies and repairs of the engine company during the same time amounted to \$885.41, and the salaries of the nine men to \$8,129.80; a total of \$9,015.21. This shows a saving of \$3,093.61 in favor of the auto company.

The difference in cost of maintenance, as you will note, is the employment of two less men on the auto company, and the cost of feeding, shoeing and caring for four or five horses of the engine company. In fact, when the auto is idle there is no expense attached to it, while the engine company has a fixed charge of expense at all times. The saving of two men's salaries is a large item of expense, without impairing the efficiency of the company, and I might say that we get better results from seven men on the auto than we do from nine on the engine company. Another good feature of the auto is the dispatch in reaching fires. This you all know is a very important factor, and I have no doubt that chiefs who are using the auto as a conveyance have had this feature brought forcibly to their attention. The auto in responding to a call in the business or congested section of the city and running at a speed of 15 or 20 miles an hour is always under full control, and is less liable to accident than the horse-drawn apparatus going at much less speed. . . . Driving an auto engine at high speed through the city does not pay, and the practice should be discouraged, as the small amount of time saved does not warrant the risk taken.

Another feature of the auto engine is the efficient service rendered in the early stages of the fire. You are not delayed by low steam pressure, a poor fire, or an incompetent stoker, as frequently occurs with the engine; but as soon as the auto is connected and the water is turned on, in less than one minute you have the full capacity of your engine, if you wish; the stream is just as good the first minute as it will be at any time of the fire, and we find it a decided advantage to have a stream that will cover an area of from 200 to 225 feet right at the beginning of a stubborn blaze.

The auto engine has traveled through the snow, and for hill climbing is a decided success. During the past winter we had considerable snow in our section of the country, and all of our auto apparatus was given a severe test in responding to calls; and I might say that we were able to go through snow drifts where four horses would not take the same load. In fact, the performance of the auto in the snow was far beyond our expectations, and we have no hesitancy in saying that it is the only safe apparatus to use in the snow.

The method of using the auto engine in Trenton is as a sort of "first aid." The auto is generally the first apparatus to reach the fire, and it immediately gets to work, if necessary, and endeavors to put it out. If it is found that other apparatus is required, the horse apparatus is sent for and as soon as it is at work on the fire the auto engine is withdrawn and returns to a central point to attend to other fires which may break out while the horse apparatus is thus engaged. By this method the auto is not required to do much pumping, but is rather confined to the duty in which it excels, that of rendering service in any part of the city on short notice.



## NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Fire and Police Items—Government and Finance

## ROADS AND PAVEMENTS

## To Make Smooth Crossings

Baltimore, Md.—City Engineer Fendall, in compliance with many requests, has decided to improve all crossings of street railway tracks. At the intersections, the old rails will be removed and Trilby rails substituted. Later cobblestones will be taken up and some smoother kind of paving laid.

## Cuyahoga County's Year's Record of Paving

Cleveland, O.—There is under construction 63.31 miles of brick pavement, at a cost of \$1,477,989.26. Improvements proposed, some of which are now in process of construction, provide for further paving of 38.82 miles, at an estimated cost of \$676,400. Of gravel, asphalt and bitulithic road there is completed 34.62 miles, at a cost of \$583,495.70. This gives the county at present three roads from the city limits to the western boundary line, five south and eight east, including the much traveled roads, State, Northfield, Brecksville, Canal, Lake, Chardon, Woodland, both north and south, Mayfield, St. Clair and South Miles roads. Many crossroads intersecting these main roads are also paved. At the present time the road improvements under way are estimated at \$1,750,000 by County Engineer Lander. The greater part of this work has been started since Sept. 7, 1909. Improvements involving the expenditure of about \$500,000 are now under consideration by the Board of County Commissioners.

## Pasadena Roads for Spokane

Pasadena, Cal.—Superintendent of Streets John Beyer is back from Spokane, where he has been showing the Washingtonians how to build roads similar to those in Pasadena. "We completed between a half and three-quarters of a mile of roads during the time I was there," said Superintendent Beyer, "and we did a lot of grading as well. They seemed very much pleased with the Pasadena process of road-building, and I had a very fine time there." Mr. Beyer was absent from the city for about two months, on special leave without pay, his compensation coming from Spokane. His visit was a great compliment, for the Spokaneites made a tour of inspection and sized up the Pasadena streets as models which they would like to follow.

## City Officials Inspect New Road

Peoria, Ill.—Mayor Conzelman with members of the City Council and merchants and other prominent citizens last week inspected the new grade road across the river, just completed, which is claimed to be the finest two-mile stretch in the state. The road was financed and built by the City of Pekin and its merchants. The state gave valuable assistance, furnishing the crushed rock, several experienced road engineers and a steam roller. The city paid the freight on all material used in its construction, and Commissioner Nickel and his force did the work. Eleven inches of crushed rock, with two layers of tarvia, followed by a fine screened coating of rock, go to make up the road. The heavy ballast is securely anchored by shoulders at either side of the roadway, and it will take the Illinois River's mightiest effort to work destruction to the improvement, as was the case during the record high water of 1904. The road, which handles the entire travel into the city from the west, has been impassable at certain seasons of the year, and has been the means of driving trade away from the city.

## Toledo-Detroit Boulevard Project Revived

Toledo, O.—Mayors Brand Whitlock of Toledo, Philip Breitmeyer of Detroit and Jacob Martin of Monroe, are interested in a plan for the construction of a highway between Detroit and Toledo. A conference will be called of municipal authorities along the route to urge them to concerted action.

## City Needs Paving Experts

Kansas City, Mo.—That there may be no bad paving laid under this administration for lack of proper inspection, Mayor Brown last week addressed a letter to the Civil Service Commission asking for an early examination of inspectors for the City Engineer's department. The Mayor says it is of the utmost importance to the property owners that an eligible list of thoroughly competent inspectors shall be available for the large amount of paving to be laid before bad weather sets in this fall. Much of the paving last fall was not properly inspected and this is given as the reason why so much of it has proved faulty.

## New Plan for Oiling Streets

Lebanon, Pa.—Dr. William J. Kiefer, Chairman of the Highway Committee of Councils, was visited by a Mr. Daniels, representing the Atlantic Refining Company, a Philadelphia concern, with a proposition for treating Lebanon's streets with oil. Mr. Daniels' preparation is an asphalt base oil, of the kind commonly used for oiling streets, so prepared that it will mix with water. Emulsified, the oil loses none of its dust-settling qualities. It costs, emulsified, \$3 a barrel, and a barrel must be used in every sprinkler load of 500 gallons of water. It must be used only once a week, however, instead of twelve times a week, as is now the case with plain water sprinkling. At the price, \$3 a barrel, the city is not now prepared to use the preparation. It would save the city money, eventually, however, some Councilmen think, because it costs the public between \$4,000 and \$5,000 annually to sprinkle the streets with water alone. It would relieve the horses of the fire companies of much work, it is pointed out, and would leave them free for fire service practically all of the time.

## Have Oiled Miles of Streets

Mount Vernon, N. Y.—Commissioner of Public Works Beresford has still a force of men at work oiling the principal streets in the city and rebuilding and repairing a number of thoroughfares. The work of oiling has now been going on for the better part of two months, and thus far 22,000 gallons of asphaltine and 12,000 gallons of standard road oil have been used.

## Oiled Road Closed to Save Asphalt Pavement

Lexington, Ky.—Following the complaints of practically every property owner on Ashland avenue, between Main and High streets, of wagons and vehicles of various kinds coming off High street, which was recently oiled, on the new asphalt paving of Ashland avenue, the Board of Public Works ordered the High street entrance to Ashland avenue closed until the oil on High street had time to dry.

## Novel Method of Financing Sidewalk Laying

Richmond, Ind.—The accountants of the State Accounting Board in their report call attention to the peculiar method of financing the building of sidewalks which is used only in Winchester. The citizens get permission of the Council to construct the walk, pay the contractor in full, and then are allowed a refund certificate by which the amount is deducted from their taxes. The legality of the method is referred to the State Law Department but the experts state that the procedure has certainly stimulated the building of fine cement walks in the city.

## Oil on Princeton Road to Trenton

Trenton, N. J.—The oiling of the Princeton and Lawrenceville road has been completed from the borough line of Princeton to Cox's Corner. This work was done more than a week ago and since then no oil has been placed on the road. The residents along the road thought that no more of the road was to be oiled, but Freeholder William L. Hendrikson, chairman of the Road Committee, said that another car of the oil had been ordered and as soon as this is received the road will be oiled all the way to Trenton.

### One-Thousand-Dollar Prizes for Road Improvement

Lancaster, Pa.—Supervisors of Lancaster County, which is rapidly forging ahead as one of the good roads counties of the State, are to have a chance to work for \$1,000 in prizes, offered for improvement of the roads which are under their jurisdiction. The contest is to be held under the auspices of the Road Drivers' and Autoists' Prize Contest Committee, of which James Rose, of Lancaster, is a prominent member, and the instigator of the prize contest. The general plan of this prize contest is to be based upon a division of the Lancaster County townships into groups of three, each group of three to be termed a section. Each section will be closely inspected by three judges, and the roads will be divided into five grades. Each grade will receive respectively a certain number of points per mile.

Grade No. 1 is to consist of a smooth good stone dressed road, well crowned, no breakers, underground pipe drainage, and clean side gutters, all made at the expense of the township. Ten points will be allowed for this grade.

Grade No. 2. Extra fine high crowned, dragged earth road, no breakers, underground pipe drainage, and clean side gutters. Eight points for such a road per mile.

Grade No. 3. High crowned and dragged road, earth road, no breakers, underground drainage, cleaned side gutters. Six points for such a road per mile.

Grade No. 4. Ordinary high crowned dragged earth road, clean side gutters. Four points per mile.

Grade No. 5. Ordinary high crowned hand-made road, not dragged. Two points for such a road.

Two demerits will be given for every water breaker encountered on any road. Four demerits will be given for each mile of road made by the old-fashioned once-a-year road scraper method in which everything is pulled out of the side gutters, including sticks, stones, sod and loose earth, and dumped into the middle of the road and left there unrolled or undragged. There must at least be 25 miles of road in each township that come under the above five classifications. If less than this amount of mileage exists, the whole township will be omitted from the contest. No road built by the State will be admitted into the contest. At the meeting of the Lancaster County Supervisors' Association, at the Lancaster Court House, on September 1, plans for the prize contest will be more fully worked out for the starting of the road repair immediately, extending through the fall, through such periods of the winter as the weather will permit, through the early spring and summer until the fall of 1911, when the final inspection is to be made.

### True Test of Street Repair Bids

Paterson, N. J.—The city recently advertised for bids for relaying pavement over openings made for sewer excavations and the like. The average of bids was for 10 feet, McKiernan and Bergin \$1.12, Edward T. McBride \$1.02. According to old methods, McBride would have received the contract. City Engineer Harold J. Harder, however, looked up the records of the amount of work done last year, and found that 265 openings were made. Carrying out the totals for each kind of pavement laid he found that McKiernan & Bergin would have been paid \$3,497.60, and McBride \$5,683.60. It was assumed that in the coming year the proportion of different kind of pavements opened would be the same and the work was accordingly awarded to McKiernan & Bergin, subject, however, to the approval of the City Attorney as to the meaning of the "lowest bidder," to whom contracts must be awarded.

### Road Experiments Not Wanted by Commissioners

Williamsport, Pa.—The County Commissioners and Supervisors Lovell and Siegel, of Mifflin Township, have demanded that the Juniata Paving Company, which is building the Mifflin state road, live up to his specifications in every particular. It develops that unknown to the Lycoming County Commissioners or the Supervisors of Mifflin Township, the State Highway Department gave the contractors authority to lay as an experiment 3,000 square yards of "bitumen macadam," a road constructed of stone and so-called liquid asphalt, and permission was given also to use local stone in its construction. The County Commissioners announce that they do not intend to permit "experiments" they do not authorize, if they can help it, and they threaten to start legal proceedings if other remedies fail.

## SEWERAGE AND SANITATION

### Municipal Plants Nearing Completion

Colusa, Cal.—The completion of two important municipal improvements in Colusa—the new sewer and water systems for which the city was bonded for a total of \$100,000—is now in sight, for it is expected that these improvements, which will greatly enhance the health of the city, will be in service in September. The sewer pipes are down and the trenches for much of the pipe for the water systems are dug, with the pipe ready for placing. It is estimated that the city will go behind on the \$50,000 water plant, but will be far ahead on the sewer system. For the water system, one driven well is down 175 feet, and the water, on analysis, has proven to be excellent. A second well is also being driven. Both the sewer and water systems cover the city. For \$2500 the city has purchased from M. O'Hair a perpetual right to pump the sewerage in Powell Slough. Before entering this, the sewerage will pass through septic tanks.

### May Destroy 1500 Insanitary Houses

El Paso, Tex.—Conditions on the south side of the city, near the river, with reference to the unsanitary surroundings in which the majority of the people of that section live, were discussed last week by the City Council. Supplementary to his regular report, City Physician Anderson declared that some way should be found to do away with the small adobe huts in the lower portion of the city, the direct cause of an alarming death rate, which is on the increase. The City Attorney assured the Health Department that the Health Department had full power in matters sanitary, but that he viewed the idea of destroying 1500 houses with considerable alarm, and suggested that some of the most aggravated cases be first attended to, and that these be followed up until the district had been made habitable from a modern standpoint. He added that the city could compel the owners to make sewer connections and confiscate the rent as payment. Alderman Clayton stated that the Health Department had full power to regulate dwellings, and even to destroy them, as he understood it, when the lives of the inmates or neighbors were endangered.

### Better Laboratory for Board of Health

Lynn, Mass.—One day last week Dr. Bennett, chemist of the Lynn Board of Health, had his laboratory moved from the old quarters in the basement of City Hall to a fine new room on the third floor. Beginning in a small way, when the prevalence of tonsillitis and diphtheria rendered bacteriological tests necessary, the doctor's work has gradually expanded until it long ago outgrew the narrow little room downstairs. Then when the study of bacteria in milk was added to his task, enlarged space was rendered absolutely imperative. Superintendent Bayrd has evolved an admirable up-to-date laboratory on the third floor by remodeling what was an old document room, and Dr. Bennett will have a well-lighted apartment, 23 feet square, with ample space for all of his work. It is now practically completed, with the exception of the corridor partition on the southerly side, which will be done very soon, and then few cities outside of Boston will have better facilities for bacteriological analysis. Dr. Bennett will have four windows and plenty of benches and sinks.

### Two Die in Sewer Cave-in

Lorain, O.—Two men were killed and two injured when a sewer ditch on Elyria avenue caved in, Aug. 8. The trench was being dug by Contractor C. E. Chilson for a large storm water sewer.

### Repairing Sewer Cave-in

Philadelphia, Pa.—A large force of workmen was employed steadily for 24 hours preparing for rebuilding the sewer on Germantown avenue, above Allegheny avenue, which caved in and blocked trolley traffic. The break in the sewer is about 70 feet in length and caused the street to disappear from under the track to the curb line, leaving the trolley rails badly twisted and unsafe to run loaded cars over. All south-bound passengers were for a time compelled to alight and walk around the cave-in, but during the night the Transit Company succeeded in placing emergency switches above and below the obstruction, so that after that there was little delay to travel.



### Surety Companies Laying Louisville Sewers

Louisville, Ky.—The immense sewer system which Louisville is acquiring through the use of the \$4,000,000 in city bonds which were voted by the people in 1906 is more than 80 per cent completed and, while it is not generally known, a number of the contractors doing the work have failed to carry out their contracts. The work is being completed under the direction of six surety companies, which guaranteed the city that the contractors would finish the work at the price named.

Expert engineers say that this spectacle shows how rigidly the Board of Sewer Commissioners is enforcing contracts by the city with contractors and requiring all work to be up to the standard. In granting work to contractors the board required each one to furnish bond with an approval surety that the work would be completed. Although the board has treated the contractors as fairly as possible, it developed soon after the gigantic system was begun that a number of these could not finish the contracts at the prices agreed upon.

In this exigency the board has required the surety companies to finish the contracts at their own expense. The surety companies now engaged in this work are: The Citizens' Trust & Guaranty Company, of Parkersburg, W. Va.; the Bankers' Surety Company, of Cleveland, O.; the Fidelity & Deposit Company, of Baltimore, Md.; the United States Fidelity & Guaranty Company, of Baltimore, Md.; the United Surety Company, of Baltimore, Md.; the National Surety Company, of New York.

The principal failure to live up to contract was that of T. J. O'Connell, who had contracts for section D, Beargrass sewer, and other smaller contracts. It is believed that Mr. O'Connell would have finished his work satisfactorily but for the fact that he suffered a serious accident which necessitated the amputation of his leg, and his subsequent absence from supervision of the work. The contract, in consequence, was thrown upon the United States Fidelity & Guaranty Company, which company has employed many of Mr. O'Connell's old force to complete the work.

The Backstaff Engineering Company have abandoned their contract on section F of the Beargrass intersepter on Kentucky street, and that portion of the work is being completed by the Fidelity & Deposit Company. The Weber Company and E. A. Barker & Co. are the other largest contractors who have been forced to call upon their surety companies for aid in completing the work.

The Sewer Commission has employed all through this work as inspectors the best qualified young men graduated from technical schools, and the inspections have been rigid, but fair. The inspection, it is said, has been as rigid as that of the Government engineers at Panama, and it is such inspection, members of the commission say, which has caused some of the contractors to abandon their contracts. It is expected that the new sewer system will be completed about Jan. 1, 1911.

### New Sanitary Code Adopted

Trenton, N. J.—The Board of Health adopted the new milk, meat and sanitary codes last week, and they will become effective when advertised for two weeks. One of the provisions of the general health regulations provides that all persons must remove from their properties all poisonous and noxious weeds, under penalties of fines ranging from \$5 to \$100. The meat code provides that all meat sold in Trenton must either bear the government's stamp of inspection or be subjected to tests by Dr. Harker, the local representative of the Board of Health. The milk code prescribes that all milk men shall file with the city the names of the dairies from which their daily supply is secured, shall not change milk or replenish their supplies on the streets, where milk from unregistered dairies might be substituted, shall have all cans clearly marked with their contents, shall store milk in places properly prepared for such storage and shall be regulated in all respects in accordance with the State law governing all the standards of cleanliness. In addition, the milk from the dairy depots will be inspected, as soon as the city provides the funds for employing an inspector, and the milk sold in the city must average 60 points of perfection in the line of clean surroundings. This is beside the tests as to solids and other prerequisites of pure milk supplies.

### Disposal of Sewage Puzzling North Carolina Towns

Raleigh, N. C.—Dr. George Thomas, of Wilmington; Dr. R. H. Lewis, Raleigh, and Col. J. L. Ludlow, Winston-Salem, constituting the executive committee of the State Board of Health, recently heard at considerable length citizens of Rocky Mount and Tarboro as to the adoption of sewage disposal plants for these towns. For a long while both have been disposing of sewage in Tar River. Now, however, Greenville is taking her water supply from Tar River and there comes the insistence that Tarboro and Rocky Mount take care of their sewage in a way that will not contaminate the water supply of Greenville. Several different plans are under consideration, and the executive committee will decree a little later just what methods shall be used by the respective towns. Here for Rocky Mount were L. V. Bassett, T. H. Battle, T. T. Thorne, R. L. Gray and Superintendent of Public Works Lyon. The Tarboro delegation included W. O. Howard, W. D. Clark and Superintendent Merritt, of the Tarboro Public Works.

### Progress of Houston's Big Sewer

Houston, Tex.—The contractors are making very satisfactory progress on the Austin street storm sewer, which sewer is to drain a large section of the Third ward and part of the Fourth, covering an area that has long needed drainage in cases of heavy rainfalls. They are now working at the crossing of Pease avenue, seventeen blocks from the mouth of the sewer at the Ship Channel. Two gangs of workmen are busy at the same time, tunneling toward each other from opposite sides of a block. This method greatly expedites the work. The sewer is 11 feet in diameter at the mouth and 7 feet at the other end. It will be fed by a number of laterals, draining into catch-basins on each side. Mayor Rice, who had the work started last year, at his last inspection of it found the work being well done and progress quite satisfactory, notwithstanding heavy rains, and it will be finished in the time limit, giving Houston one of the largest sewers in the South.

### City Seeks Data on Sewage Plans

Pittsburg, Pa.—The protests lodged by the residents of the South Hills against the dumping of sewage into Saw Mill run has borne fruit in a demand by the State Board of Health upon the city of Pittsburg and the boroughs of Carrick and Knoxville and the townships of Baldwin, Union and Scott, to proceed at once in a co-operative way to install a satisfactory system of sewage disposal in the place of allowing it to be carried in the open streams of the different branches of the valley. The city of Pittsburg has sent formal communications to the Knoxville and Carrick Councils, asking that data be furnished the city, showing how these boroughs propose to establish a disposal plant in the Big Saw Mill Run valley to take care of the sewage from the watersheds of their respective boroughs. When Dormont submitted its plans to the State Department, the requirement was made that the disposal plants should be located, as far as possible, in places where other municipalities might have the advantage of them at some future time or where trunk sewers might be constructed under the direction of the Greater City.

### Locating the Source of Typhoid Epidemic

Wilkes-Barre, Pa.—It is reported that the probable source of the typhoid epidemic which in the last few weeks has caused considerable alarm, has been located. It was found that 17 patients bought milk from the same dairyman. Visiting the farm near Dallas, the doctors found a spring. Into it ran a stream from a nearby house where there were two typhoid patients. This spring was used for the washing of milk cans and it was thought that it might be contaminated. Two samples of the water were taken and after they had been analyzed it was found that they showed intestinal germs. The stream which runs from the spring, partly on the surface and partly underground, makes its way into Toby's Creek and Toby's Creek empties into the filter at Hillside from which comes the Huntsville water. Another visit was paid the farm and the dairyman, whom the doctors claim was perfectly innocent of any wrong, agreed that the doors of the spring house should be sealed. The walls were torn out and the stream which ran in the direction of the house was diverted. In this way the officials believe they have cut off one possible source of contamination.

## WATER SUPPLY

### Annapolis Water Tested

Annapolis, Md.—Since the recent development of typhoid cases, Dr. George Wells, Chief of Staff of the Annapolis Emergency Hospital, sent a specimen of the city water that was taken from pipes on Charles street to the State Chemist at Baltimore, for analysis. The returns of the test have recently been announced, and the city water is declared to be free of germs, pure, and the second best water in the State, of which a scientific test and analysis has been made.

### To Forbid Improper Use of Fire Plugs

Chatham, N. J.—The practice of obtaining water from the fire hydrants by persons without proper authority has become so great that the Common Council will shortly pass an ordinance to forbid such use and provide penalties. Complaint regarding the matter was made to the Council by a local plumber, who is in the Fire Department.

### New Water Offices

Cincinnati, O.—Announcement was made in the office of Public Service Director Sundmaker that as soon as a complete list of the places designated by the various improvement associations had been received, that branch offices for the payment of city water bills would be established in the suburbs. The suggestions for those branch offices were favorably received by Director Sundmaker and he stated that there could be no cause for objection, as the little additional expense would not come from the city budget, and that it would be borne by the water consumers.

### Company Surrenders Franchise

Green Bay, Wis.—The Board of Directors of the Green Bay Water Company has decided to surrender its franchise and to operate under the public utilities law. Among the reasons given for the change is the desire of taking up the present floating indebtedness and to provide means for future additions and extensions to the service by an issue of bonds. The life of the franchise is too short to permit of an issue of bonds, and the stockholders, who have already expended about \$250,000 for improvements, do not want to invest more capital in the business. It is the desire of the officials of the company to operate on a meter system, which is not possible under the clauses of the charter.

### Guthrie Water Is Pure

Guthrie, Okla.—“Guthrie, of all cities I have visited in Oklahoma, has the purest water supply, and which as a matter of fact is free from fever germs of any kind.” The above statement was made by Frank Schoner of Philadelphia, who is making an inspection of the filtration plants of the State. Mr. Schoner is a water and filtration expert, and is in the city gathering data for additions which are to be made to the city filtration plant. Mr. Schoner stated that he had not only visited the local plant, but had made tests from the water taken from the mains in various parts of the city, and that the results were a great surprise to him. The purity test was equal, if not higher, than that of any city in the country, and the absence of germs or animal life was quite surprising. “Guthrie is to be congratulated,” said Mr. Schoner, “on its good water supply.”

### Bad Mishap at Water Works

Mishawaka, Ind.—The bursting of a pipe on one of the city's large pumps at the water works about 10 a. m., Aug. 8, flooded the building and short-circuited the plant of the city electric station, cutting out all current for about six hours and handicapping the water power until the pumps of the Mishawaka Woolen Manufacturing Company could be connected with the city mains. As the powerful stream struck the switchboard a mass of blue flame enveloped the building, and smoke issued from the roof and front door. Immediately after the accident the woolen company was notified and it connected its pumps with the city mains and the pressure was resumed, though the capacity was thus reduced two-thirds, from 6,000,000 gallons per day to 2,000,000. Superintendent Crabill, of the electric station, immediately procured additional help and started the reconstruction of the switchboard. The work consumed about six hours, however, during which time the city was without any electricity whatever.

### South Bend Water Works Improvements

South Bend, Ind.—With a force of men excavating this week for the foundation of the new Leeper Park water works station, actual work in the complete rebuilding of the water system of South Bend was started. Plans of the Water Board include the construction of a pumping station at Leeper Park to be operated by electricity, the sinking of 72 artesian wells and the abandoning of the present pumping station. The reconstruction work when completed will mean the expenditure of over \$50,000. Of this amount, approximately \$20,000 will be spent in the construction of the new pumping station. With the pumping of the 12 new artesian wells, water authorities expect the lack of water at any time, as has been experienced several times recently, will be a thing of the past. Approximately 4,000,000 gallons of water will be pumped from the 12 wells daily, according to previous tests, which will make the city's total daily water supply approximately 18,000,000 gallons. When pumping up to capacity the north pumping station is able to furnish 9,000,000 gallons of water daily and the central station 5,000,000 gallons. Following the tests on the first groups of wells, a second group of 12 will be sunk in the first wing, increasing the daily capacity of the new station to 8,000,000 gallons. Plans of the water board are to sink 24 more wells during 1911, making a total of 48 wells, with a daily capacity of 16,000,000 gallons. The year following, the board plans to sink another group of 24 in another wing of the Leeper park station, making a total of 72 wells, with a combined daily capacity of 24,000,000 gallons. The supply, it is expected, will be sufficient for the city for some time to come, and the remaining wing will be left vacant.

### Can City Lay Mains Without Regularly Assessing?

Spokane, Wash.—After laying scores of miles of water mains for the past few years out of the public funds and advancing money out of the fund to real estate promoters to lay mains in new additions to the city, the city has called a halt and the legality of the transactions of this kind in the past and of proceeding further in the same way will be investigated. Corporation Counsel F. B. Morrill has been called upon to decide whether or not the city, under a charter amendment passed by a vote of the people in May, 1907, can legally lay water mains by any other system than by assessing the cost to the property benefited, as is done in all other city improvements.

### Water Supply for High Section

Trinidad, Col.—The sum of \$16,000 has been expended by the city for the construction of a high water service system on the south side, and the booster pumping station, which will supply ample water for domestic purposes to the dwellers of the James addition and the residents of reservoir hill, is now about completed, according to W. R. Lewis, superintendent of the city water works. Fisher's peak arroyo has been piped with 12-inch iron pipe and the water raised by means of these pumps to the reservoir on the hill, which has a capacity of a million and a half gallons. From this reservoir the water is distributed to every resident, and plenty of it, just when they most want it.

### Algae Grow in Filtered Water in Open Reservoir

Wilmington, Del.—Chief Engineer Kienle has reported to the Water Commissioners the following result of the operation of the filter plant during the last week:

On gelatine—Raw water of Brandywine, 12,500 bacteria; filtered water, 25 bacteria; efficiency, 99.8 per cent. On bile agar—Raw water of Brandywine, 1,250 bacteria; filtered water, 2 bacteria; efficiency, 99.8 per cent. The chief engineer added:

“Owing to the continued spell of warm weather the filtered water, due to open storage in Cool Spring reservoir, developed a considerable quantity of algae, which imparted a disagreeable odor and taste to the water and gave it a light brown color.

“Owing to this condition the reservoir was passed by the early part of the week, and the filtered water delivered direct to the low service distribution system.”

In commenting upon this report, President Shaw declared that it would be necessary eventually to have the reservoirs covered.



## STREET LIGHTING AND POWER

### City Sues for Lights

Buffalo, N. Y.—The city's action against the Buffalo General Electric Company was started last week by the service of the summons and complaint upon William R. Huntley, assistant general manager of the company. The suit is to compel the company to supply the additional arc lights recently ordered by the Common Council on twenty or more streets. The complaint alleges that the company is compelled to put in the lights under its agreement with the city, made on May 14, 1906, and covering a period of five years from March 1, 1907 at \$56 per lamp per year. It is also alleged by the city that it will be subject to damages by reason of persons injuring themselves on unlighted streets.

### New White Way Eclipsed by Hail

Chisholm, Minn.—The "Great White Way," the name given to the row of new electric street lamps erected on all the intersections of the avenues with Lake street, was lighted for the first time on Aug. 6. The sight was pleasing, indeed, and, strengthened by the lights from the different store windows, gave Lake street a very brilliant appearance. Each lamp post has a cluster of five lamps mounted at its top, and there is one lamp post at each of the four corners of the crossings. The old wooden light poles have been taken out from Lake street. A hail storm, two days later, completely put the "white way" out of business. All the globes were broken and it will take ten days to secure a new supply.

### Decorative Street Lighting in Dallas

Dallas, Tex.—The committee of Elm street property owners soliciting subscriptions for the decorative lighting system for Elm street, have reported that contracts had been signed up for about 1100 front feet along Elm street at a contract price of \$2 per front foot. The total frontage on both sides of the street amounts to 4500 feet. Some difficulty is being experienced through many of the property owners being out of the city. It is proposed to install on this street the decorative lighting system which is in use in Los Angeles, Detroit, Denver, Minneapolis and scores of other cities along the street. These posts are to be of iron, and it is expected they will be similar to the one placed by the Chamber of Commerce on Commerce street just east of Lamar. Each upright carries a cluster of five 100-watt tungsten lights. The price covers both the installation cost of the best type and maintenance for a year, after which the city is to continue the lighting.

### New Lighting Scheme for Lockport

Lockport, N. Y.—A more modern system of lighting Main street is under consideration. Some time ago General Manager O. M. Diall, of the Lockport Light, Heat and Power Company, suggested arches across the street in place of the present arc lights. The Aldermen adopted the idea but the International Railway Company would not consent to have the extra burden on its poles. Later Mr. Diall took up another suggestion, that of having large pillars, mounted with bright tungsten lamps in groups at intervals of every hundred feet. This is being adopted by large cities, particularly in the enterprising West. They would no doubt be a feature of grandeur and have a commercial value toward advertising the city. Contractor O'Leary, who installed the grand Old Home Week lighting system, is interested in the proposition and will design a system which he will offer to the city.

### Electric Firms to Test City Ordinance

Los Angeles, Cal.—The electric light and power companies of Los Angeles have determined to test in the courts the recently enacted city ordinance fixing the rate per kilowatt hour at 7 cents, instead of 9 cents, and have allowed two employees to be sent to jail in default of bonds for alleged violations of the law. Attorneys for the companies announced that a test would be made in these cases, and that they would sue for writs of habeas corpus. The law not only reduced the cost of heat and lighting, but made other strict regulations. One of the men arrested was accused of having violated the law in that he charged patrons for installing incandescent lights in their houses.

### Municipal Plant Has Ten Thousand Dollars

Pasadena, Cal.—Manager Koiner, of the Municipal Electric Light Department, has made a report which shows a cash balance of \$10,247.20, which includes all charges for June. The report shows the cost of meters and construction during the present month is \$700. This leaves the city with 2,825 meters purchased and 2,560 set and more than enough meters on hand to set the balance called for during the month. Manager Koiner says that with the earnings of July, August and September to apply to this cost, there will be ample money on hand to set all meters required by September 1, when the rate will be dropped to five cents. In his report Koiner says: "It is the policy of the city to continue adding all new business we can get and provide extensions and equipments to take care of same as needed. The cost of adding new meters is about \$20.00, including service connecting and labor."

### Special Illumination for Conservation Congress

St. Paul, Minn.—An elaborate illumination of the city has been planned to greet the delegates to the conservation congress. From the tops of tall buildings high temporary towers will probably be erected for electric display purposes. Immense letters, compelling the attention of every nocturnal traveler for twenty miles hereabouts, will be worked into sentences of greeting and welcome. There will be slogans and mottoes setting forth St. Paul as the gateway to the Northwest. It is probable also that efforts will be made at effects purely artistic, consisting of sunbursts and wreaths. Powerful searchlights may likewise be used to throw words upon the sky. Suggestions have also been made to anchor on high big balloons covered with thousands of incandescent bulbs. Arches of incandescent bulbs stretching from curb to curb will be suspended above each pair of lighting posts in the downtown district. Many of the business blocks will be sketched nightly in electric outlines. The capitol, the court house, other public buildings and several of the hotels will be sheathed in glimmers of white. Efforts will be made to interest the Twin City Rapid Transit Company in lighting their cars on the outside, as they are now lighted within, by incandescent globes. While no expression has yet been obtained from the street railway officials, they will probably be approached on the matter.

### Roanoke Gets Tips on Lights

Minneapolis, Minn.—Minneapolis is setting the pace in ornamental street lighting. Roanoke, Va., is the latest city to find here just what she wanted in that line. Some time ago W. G. Claytor, an electric engineer from the Virginia city, visited Minneapolis among other places where special lighting systems are installed, and writing to C. B. McCall, of the Publicity Club's lighting committee on his return home, he asks many specific details in connection with the Minneapolis plan. His letter concludes: "The writer had the pleasure of visiting several other cities on this trip, and the ornamental lighting in Minneapolis was by far the most artistic and satisfactory lighting which he had the pleasure of seeing. You should certainly feel proud of your city."

### Choose Electrolier Design

Sacramento, Cal.—Electroliers with a design of a grizzly bear on the top have been tentatively selected by the Retail Merchants' Association Electrolier Committee to be presented to the Board of City Trustees for adoption. The design is practically the same as that chosen by the merchants some time ago, but which was used in San Francisco. If the Board of Trustees adopt the design it will be the model of all the street lights on J and K from Front to Tenth streets.

### New Street Lights

Sherman, Tex.—The new street lights on North Travis street were put in operation last week for the first time. These lights are on iron posts, and are set every 50 feet, alternately, on either side of the street. The street is as light as day, presenting a beautiful appearance. Both Saturday, the opening night, and Sunday night, this thoroughfare was crowded to the limit, the appearance of the street and the great throng of people making one think of "circus day," or some similar event.

## FIRE AND POLICE

### School for Firemen Benefits Men

Johnstown, Pa.—The school for firemen established by Chief Keller about two months ago is now showing its benefits, and the work of the men each morning at the quarters of Truck Company No. 1 is very interesting. The school combines a thorough knowledge of the apparatus with enough exercise in handling it to keep the muscles of the men hardened and fit for any demand made by duty. The course of "study" is varied each morning. One time the men will lay a thirty-foot ladder, weighing 125 pounds, on the street, one end resting against the curb. Then they will take turns raising it, rung by rung, until the ladder stands upright. Then they lower it in the same manner. Foot races, over varying distances, are pulled off every few days. This is to benefit the firemen's wind. Again a ladder is placed against the truck building and the firemen go up and down as fast as they can, carrying a large chemical tank. This is good for both muscles and wind. One of the hardest "stunts" and one that is absolutely necessary for the firemen is the work with the mammoth truck housed at the First Ward quarters. This wagon carries a sixty-foot extension ladder, which would prove of great benefit at a fire in the business district. On such occasion there would be a possibility that any member of the department working at the fire would be called upon to assist in handling the ladder. So every member has been taught all there is to know about the big wagon. There is a knack in "catching a plug"; that is, to drop off the back of a chemical wagon with the end of a hose when a hydrant is passed, and make a quick connection. To make every man familiar with such work, trial runs are made from the Truck Company. An alarm is sounded on the house bell, the horses run under the harness and are hitched up, the men swarm on the wagon and a run is made to the hydrant near the High School building. Generally Chief Keller is waiting there to time the men in their work, and he acts as instructor. The usual teacher, however, is Capt. Kazamek, of the Truck Company. Every morning one man from each company reports at the Truck Company at 9 o'clock for instruction. Every member of the Fire Department has gone to school about six times since the "college" was opened, and all are becoming proficient in their studies. The result is noticeable and the benefit has proven so great that the school will be continued indefinitely. The men appear in better health and physical condition from the exercise, and are more proficient in the handling of apparatus, even though the older members have received actual experience through work at many fires.

### Firemen Respond in Forty Minutes

Pittsburg, Pa.—Residents of Beechview are indignant and threaten to take action to compel the city officials to provide fire protection for that section of the city. As matters now stand that section of the Nineteenth ward is wholly at the mercy of the fire fiend, having no protection whatever, save volunteer equipment. A fire in the Lucock apartments at 3 a. m., Aug. 12, forced their helplessness strongly on the attention of citizens. Despite the fact that an alarm was immediately sent in to a fire company on Mount Washington, there was no response for 40 minutes; and then two empty-handed firemen appeared and inquired as to the location of the blaze.

### Mayor Would Strengthen Fire Fighters' Equipment

Boston, Mass.—The Boston Chamber of Commerce has received from Mayor John F. Fitzgerald a request to cooperate with the city authorities in improving the city's fire protection, and a special meeting will be held to consider the subject. The need for improvement was demonstrated by the fire in the lumber district on August 9. The Mayor says that only the absence of a high wind saved the city from a sweeping conflagration in the residential sections. He proposes to extend the high-pressure service into the south end; to strengthen the laws relating to wharf construction, segregating the great piles of lumber on the water front; a reserve fire alarm system; more adequate building laws, and an increase in the membership of the Fire Department.

### Police to Study "First Aid"

Kansas City, Kan.—The police are to be instructed in giving first aid to the injured. Mornings and evenings before roll call the men will report an hour early at the City Hall and Dr. J. F. Hassig, police surgeon, will show them how to administer emergency aid to persons who have been stabbed or injured in other ways. The police also will be instructed how to treat drowning persons or persons overcome by smoke. Dr. Hassig will conduct the "first aid" classes in the police courtroom. The night men will receive their instruction in the courtroom from 5:30 to 6:30 o'clock, and the day men will be taught at the same hours in the morning. Sixty police will be instructed.

### Motor Cycles for Call Policemen

Atlanta, Ga.—Two Indian motorcycles have been purchased for two police call officers, and will be used by them instead of bicycles in answering sudden calls.

### Ship Old Fire Engine

Sacramento, Cal.—The fire engine which came to California around the Horn in 1852 and is the oldest on the Coast, was shipped from Marysville to Sacramento, to be placed in Sutter Fort. The Sutter Fort Commission will give it a place of prominence among its pioneer relics.

### Fire Loss in U. S. for One Month

Washington, D. C.—A big increase in fire losses throughout the United States and Canada was reported for last month. Statistics put the total losses at \$26,847,900, which is more than \$11,000,000 greater than the losses for the corresponding month a year ago. The July, 1909, losses aggregated \$15,830,900. Excessive losses in the northwestern section of the United States, wherein are situated the big lumber camps, boosted last month's loss. Lumber yards, lumber mills and timber lands were hard hit by fires, the losses to these properties having been about \$6,000,000. Since the first of the year the fire losses have totaled \$126,076,800, which compares with \$119,633,900 for the first seven months of last year and \$140,820,900 for the same period the previous year. The following table shows the losses by months so far this year, compared with the first eight months of last year and the same period of 1908:

	1908	1909	1910
January .....	\$29,582,000	\$22,735,000	\$15,175,400
February .....	18,489,700	16,131,000	15,489,350
March .....	16,723,300	13,795,400	18,465,550
April .....	26,009,000	19,345,300	18,091,800
May .....	15,181,150	17,360,400	18,823,200
June .....	19,512,000	14,435,000	13,183,600
July .....	15,323,750	15,830,900	26,847,900
Totals .....	\$140,820,900	\$119,633,900	\$126,076,800

The fires enumerated below, together with the loss in each instance, were the most serious last month, from a fire insurance standpoint:

Amprior, Ont., lumber yards.....	\$1,000,000
Paterson, N. J., ribbon mills.....	250,000
Charleston, S. C., wholesale stores.....	250,000
Marinette, Wis., timber lands.....	1,200,000
Campbelltown, N. B., conflagration.....	3,500,000
Portland, various .....	480,000
New York City, steamship pier.....	750,000
St. Paul, business block.....	270,000
Lakeview, Ill., grain elevator and brewery.....	600,000
Waukegan, Ill., iron and brass works.....	350,000

### Auto Hose Wagons and Other Improvements

Waterbury, Conn.—Engineers of the National Board of Fire Underwriters, after a thorough inspection of the city and its equipment, places the Fire Department of Waterbury fourth in rank, those of Hartford, Bridgeport and New Haven outranking it. It is recommended that all hose wagons bought in the future should be of motor-propelled type, that 3-inch hose, which is now entirely lacking, be procured, that the fire limits be extended, that the present commendable cooperation between Police and Fire Departments at fires be encouraged at every opportunity, that firemen be required to prove more than their physical fitness for positions by the training and drilling of all applicants to a standard of efficiency satisfactory to the Fire Chief before being appointed to the department, that the department be placed under supervision of a one-man commission, and that the Chief be given more general control over the department. The engineers' report also points out that the fire-alarm system is weak and dangerous, that headquarters is badly located in an unsafe building, that part of apparatus is antiquated, that protection is poor in some districts and demands that the Department be taken out of politics.



## GOVERNMENT AND FINANCE

### Barry, Tex., Votes for Commission

Barry, Tex.—The election to adopt a commission form of government was carried by a majority of 13.

### Commission Plan to Be Voted Upon

Montgomery, Ala.—An election on the question of adopting a commission form of government for the city has been called for September 19, the date of the city election. The object of the voting is to determine the will of the people that it may be a means of instructing the members of the legislature.

### Charter Framers Name City Officers

Oakland, Cal.—The commission form of government, the initiative, referendum and recall, and other features of the modern city charter will be included in the instrument of government is that being framed by the Board of Freeholders, according to their decision at the last meeting. All city officers shall submit to two elections before taking office, the first to be in the nature of a primary, and no person to be elected by obtaining a majority vote at the first election. It was decided that there shall be a Mayor, Auditor, and four Councilmen, who, with the exception of the Auditor, shall form the Board of Commissioners, which shall have charge of the various departments of the city government. The details of their duties have not as yet been outlined. The salaries of these officials, together with those of the Board of Education, will annually cost the city nearly \$28,000. The Mayor will receive an annual salary of \$6000, each of the four Councilmen to be paid \$5000 a year and the four members of the Board of Education to get \$40 a month. The Berkeley charter is the basis of all operations of the Oakland freeholders in framing the new charter, which will resemble the Galveston and Berkeley instruments.

### St. Cloud to Vote on Commission Plan

St. Cloud, Minn.—The City Council has designated Sept. 20 for a vote on the so-called commission plan. Organized labor, which was strongly opposed some months ago, is now in favor of the plan and will support it almost unanimously. It is said that the outcome of the city election last spring, at which political deals brought about undesirable results, is the cause of the change in sentiment. The indications are the commission plan will be adopted.

### Bars Private Business from City Hall Office

Syracuse, N. Y.—“Please do not ask me to transact private business in this office.” This request is lettered on large placards which will be placed in the office of the Department of Public Safety when Commissioner Hessler returns from his vacation. Mr. Hessler has signalized his direction of the Department of Public Safety by putting in long hours each day. He apparently does not wish to have his official service to the city interrupted by the claims of private business. It is understood that Mr. Hessler has arranged to give one hour a day outside of the city's office to his private affairs.

### Factory District to Be Brought Into City

Terre Haute, Ind.—At a caucus of the City Council an ordinance was adopted which is to be introduced at the regular monthly meeting to change the city boundaries by which the factory district will be brought into the city. The matter has been discussed for months and the factory owners have been exerting influences against the ordinance. City taxpayers, including older industrial concerns, have been advocating the ordinance on the ground of discrimination in favor of the concerns, and the resident population in the factory district will be taken in that they may have the benefit of city improvements and utilities. The factory district has grown so that a new ward had to be added to the city for that part of the district which already was inside the limits. The owners of the factories contend that when they were induced to move to Terre Haute within the last ten years they were promised exemption from city taxes, but the Commercial Club replies that whatever may have been intimated in that regard was for no longer time than five years.

## STREET CLEANING AND REFUSE DISPOSAL

### Woman Ward Superintendent Begins Cleaning

Chicago, Ill.—Miss Anna E. Murphy, the newly appointed Ward Superintendent of the Twenty-ninth ward, one of the dirtiest wards in the city, completed her first day's work one day last week. She says that in time the ward will be the pride of Chicago in point of cleanliness. “We shall go through the alleys and back yards,” she said, in telling of her plans, “and then we shall notify the residents, who are practically all foreigners, by means of notice printed in their own language, that uncleanliness means sickness and death. I think they will then be willing enough to help keep their places clean.” The Twenty-ninth ward extends from Thirty-ninth street to Fifty-fifth street, and from Halsted street to the city limits. The population of the ward is estimated at 40,000 to 50,000.

### Would Abolish Sprinkling Wagon Standpipes

Clinton, Ia.—The proposition of abolishing the standpipes used in supplying water to the sprinkler wagons came up in Council and was referred to the proper committee. Commissioner Robb addressed the Council briefly on the subject, stating that Clinton was behind other cities in this regard, and declaring that many complaints had been made against the old standpipes which are eyesores to many. Mayor Smith remarked he was glad that the people of the city were waking up to the fact that there are eyesores in Clinton which should be removed. Commissioner Robb will confer with the fire and water committee of the Council on the subject.

### Will Collect City Garbage Semi-Weekly

Columbus, O.—Plans are rapidly being carried out which when completed will assure the residents of Columbus a semi-weekly collection of garbage instead of a weekly one as at present in vogue. The city is now building a brick stable at Mound street and the Hocking Valley crossing, which when completed will be filled with municipal horses, and then the semi-weekly collecting of garbage will be begun. Under the present system, the garbage collecting is done by hired horses, but when the new stable is completed, I. S. Osborne, superintendent of the garbage plant, expects to purchase 45 horses for the city and use them in this service.

### Sprinkling Cost of Drouth Is \$50,000

Minneapolis, Minn.—Unprecedented drain on city water supply for sprinkling during the drouth this summer in Minneapolis will cost citizens more than \$50,000. The total amount of water bills for the past quarter is about \$115,000. Last year, during similar period, the bills aggregated \$70,000.

### Suction Street Sweeper Tested

Pomona, Cal.—The members of the Board of City Trustees recently watched the operation of the new suction street sweeper which the city has had on trial for the last thirty days, and expressed themselves as satisfied that the sweeper is doing as good work as could be expected. The machine costs \$1,800 and is the same machine which is in use in Redlands, San Bernardino, Long Beach and several other cities of Southern California. On Second street the machine has not been doing its best work because of the many holes in the paving, and it is not strong enough to draw the dirt out of the holes, but on Third street the dirt is taken up with very little dust. Since the suction sweeper was put in use no sprinkling has been done on any of the paved streets, thereby saving a considerable expense.

### Report of July Operation of Crematory

Richmond, Ind.—William E. Whitacre, superintendent of the crematory, has submitted a report for the month of July, showing 439 yards of wet garbage to have been consumed and 110 yards of dry garbage. Nineteen animals were also disposed of. Approximately 20 tons of coal were burned and the payroll amounted to \$368.50. Disbursements were made as follows: Repair on garbage wagons, 75 cents; having a garbage hack made, \$2.25, and \$141.01 for 98,775 pounds of coal from the city light plant.

## MISCELLANEOUS

### Buffalo Will Have a Tree Nursery

Buffalo, N. Y.—The announcement that the city will soon have a tree nursery of its own has been made by City Forester Filer. Mr. Filer said the place chosen is on one of the farms comprising the J. N. Adam Memorial Hospital at Perrysburg. A considerable quantity of seedlings will be planted some time this fall. Seeds will be planted in the spring, the object of the city forester being to have a nursery of about 100,000 seedlings from which young trees may be transplanted along city streets, saving the expense of buying from nurseries. Mr. Filer says he will put in between 50,000 and 60,000 seedlings this fall. These he will buy at the same time he buys the 6000 or 8000 young trees for immediate planting along city streets. Some time this fall the City Forester will also collect a quantity of seed for spring planting. Such seed as he is unable to collect in the vicinity of Buffalo he will buy. Seedlings cost from \$5 to \$10 per 1000, says the City Forester. The trees ready for planting in the streets cost about \$3 each. It requires about ten years for a seedling to reach the size and strength required for permanent planting. The City Forester's buying this fall will be of Scotch elm, white ash, red oak, European linden, Norway maple and scarlet oak. Last fall about 3000 trees were planted in different parts of the city. The number will at least be doubled this fall. Planting will begin about the last of October.

### Speed Limits in Decatur Parks

Decatur, Ill.—The Board of Park Commissioners has issued an ultimatum limiting speed in the city parks to ten miles an hour, and especial attention will be given to the enforcement of the rule in Fairview Park, the most frequented of all of the resorts. The Park Commissioners declare that of all places where speed should be prohibited, a park, a playground for children, is first on the list, and that any one should so far forget the common sense rules and drive autos and motor cycles to the limit of their possibility in speed has aroused official ire. Due notice is given, and the first offender who disregards the warning will "get the hooks" before a police court justice. If fines prove futile auto drivers will be barred from the parks.

### Useless Specifications Waste Engineer's Time

Duluth, Minn.—In a communication to the City Council last week Mayor Cullum pointed out that last year the Engineer's Department superintended work which cost \$356,000 in round figures. But the department was required to make plans and specifications for work estimated at over \$2,000,000. This causes a considerable waste of money and energy. While the men in the office and the field staff should be busy every moment upon construction work actually in progress, they have to take time planning work which cannot be completed for years to come. As a result the construction suffers. An inspector cannot be kept on the important jobs continually. This gives contractors who are inclined to be dishonest a chance to cheat the city. They could put in inferior materials, skimp here and there, and leave imperfections which would not be discovered until too late. The Mayor requested the Council not to call for plans and specifications unless the work was needed and very likely to be done.

### Systematic Tree Planting for Hartford This Fall

Hartford, Conn.—The city of Hartford will begin this fall a systematic planting of trees on its public thoroughfares. In accordance with that plan Frederick L. Ford, superintendent of streets, has sent a communication to George A. Parker, the advisory City Forester, asking him to inspect certain streets and avenues and then report to him such recommendations as he may find advisable, in reference to where the trees ought to be planted. It is intended to give attention first to the main arteries of the city, which are Wethersfield avenue, Maple avenue, New Britain avenue, Farmington avenue, Albany and Windsor avenues. The secondary arteries will then be considered. They are Franklin avenue, Park street, Asylum avenue, Blue Hills avenue. About 100 trees will be planted. The city will have to buy them this year, as well as during the coming three or four years. By that time the city's own tree nursery will be ready for use. Mr. Ford will start the city nursery this fall.

### Contractors May Be Taxed Annually

Harrisburg, Pa.—An ordinance providing for a tax on all contractors, according to the amount of business each does annually, was presented in Common Council last week by Commissioner William Smith, of the Eleventh Ward. This tax on builders is included in a measure which provides for "the levy and collection of a license tax on hawkers, peddlers, produce or merchandise venders, agents of fire insurance companies and contractors." Each contractor under this measure, should it pass, will have to pay a license to the city annually according to the whole volume of the annual contracts, respectively, as per the following schedule: If the annual contracts of a man amount to \$7,500 his fee will be \$5; \$15,000, \$10; \$15,000 to \$25,000, \$20; \$25,000 to \$35,000, \$30; \$35,000 to \$55,000, \$40; \$55,000 to \$75,000, \$50, and \$75,000 upwards, \$100.

### New Garage Ordinance in Force

Fond-du-Lac, Wis.—The garage ordinance passed by the Common Council on June 14 has become effective. A majority of the garages in the city have complied with the ordinance. The ordinance requires cement floors, fire-proof party walls, outside walls, or partitions and steel ceilings in all garages.

### Change in Playground Policy

Rochester, N. Y.—Indications now point to a revolution in the playground policy of Rochester, and, granting that present plans mature, in the near future this city will have developed a system of play education duplicated in but few cities of the country. Since the departure of E. J. Ward, former Supervisor of Playgrounds and Social Centers, Marion B. Newton, his successor in the playground department of the work, has formulated some ideas which point toward far-reaching reforms in this all-important branch of social education. In brief, the plans of Miss Newton and others embrace a concentration of the playgrounds in the congested districts with a weakening of the outlying social enclosures as the apparent result, a transfer of the administration of the playgrounds from the Board of Education and Park Board to a commission of five city officials, the possible use of the State Industrial School grounds for a playground and the contemplated purchase of the hay-market for a similar purpose.

### City Hall Is Completed After Twenty-Two Years

Trinidad, Col.—After having waited 22 years for the municipal building, the various city offices are this week being moved into the new City Hall. The foundation for the building was laid during the administration of T. D. Collier, in 1888. It was not until a few years ago that work was resumed upon the building, which only now has been completed. Another feature is that no provision was made in the original plan for heating the building, and a month or two ago the city officials discovered they had a City Hall without a chimney. The City Council is now considering a contract for the construction of a stone chimney outside the building.

### Rules for Travel in South Bend

South Bend, Ind.—Ordinance No. 1,588, which has 42 specifications regulating moving travel and traffic upon the streets, alleys and public places of South Bend, is now a law. A penalty of not less than \$5 nor more than \$25 may be imposed for each violation of any of the provisions. Police have the right under the ordinance to seize all vehicles driven in violation of any of the provisions of the measure and hold it until the fine is paid. State laws govern the speed of motor vehicles and the speed of steam and electric cars are governed by other measures. The mission of the city ordinance is to provide rules for travel upon the streets so that, with the enforcement of State and city speed laws, there will be little excuse for accidents of any kind. Part of the regulations are along the lines of the time honored custom of keeping to the right when traveling. Further specifications make it unlawful to drive within four feet of the running board or step of any street car. Children under five years are excluded from bicycles. All horses must be tied or in charge of an attendant when left upon the street. Every possible condition, the Council believes, is covered in the 42 specifications.



## LEGAL NEWS

## A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities

## Public Improvements—Irrregularities in Proceedings

*Owners' Realty Co. of Baltimore City v. Mayor, etc., of City of Baltimore et al.*—An ordinance required the city register, within five days after proceedings to pave a private alley, etc., shall have been deposited, to notify interested persons by advertisement inserted once a week for four successive weeks in two daily papers that the assessment and plats have been placed in his office, and gave the parties affected a right to appeal therefrom by a petition in writing to the Baltimore city court. The notice published pursuant thereto was printed in three city papers, describing the alley to be paved as the "alley rear of 1701 T. avenue." Plaintiff's land lies immediately across the alley from the rear of lot 1701, but extends far beyond the rear of that lot; and a number of other private alleys and streets to be paved under the ordinance were included in the notice. Held that, where a tribunal of limited jurisdiction acts within its jurisdiction, and a statutory mode of reviewing its decision is provided, errors or irregularities in its proceedings are not ground for authorizing a suit in equity, and the notice of the paving of the alley was not wholly void because of any insufficiency of the description, or because other alleys were included in the notice, so that equity will not enjoin an assessment of abutting property for the paving; the owner's remedy being an appeal to the Baltimore city court, as authorized by statute.—Court of Appeals of Maryland. 76 A. R., 575.

## Defective Street—Answers to Questions

*Olmstead v. City of Olympia.*—In an action against a city for injuries to a horse, caused by a six-inch hole in the planking, a special interrogatory submitted to the jury, that if an ordinarily prudent man saw the defect in the street prior to the accident, would he have anticipated any probability of an accident therefrom, was answered in the negative. Held, that as the jury's answer applied as well to pedestrians, automobile drivers and the like, not specially interested, as to drivers of horses, or persons charged with keeping the street in condition for travel, it was too indefinite to control the general verdict for plaintiff.—Supreme Court of Washington. 109 P. R., 602.

## Defective Streets—Actions—Notice

*Wood v. City of Omaha.*—In an action against a city for damages caused by a defect in a sidewalk, in which the evidence received without objection tends to prove that the walk upon which the accident occurred on a given street along an entire block is decayed and in a condition dangerous to persons passing over it, and that the city authorities had notice of the general condition of the walk, it is not necessary to prove notice to the city of the condition of the walk at the particular point where the accident occurred.—Supreme Court of Nebraska. 127 N. W. R., 174.

## Claims—Presentation

*Bayard v. City of Franklin.*—The word "claims" in section 80, art. I, c. 14, Comp. St. 1909, relating to cities and villages, applies alone to those arising upon contract, and not upon tort, as for personal injury caused by the negligence of the city.—Supreme Court of Nebraska. 127 N. W. R., 113.

## Contracts—Claims—Waiver

*Capital City Brick & Pipe Co. v. City of Des Moines.*—Where a contract for the construction of a bridge for a city provided that certain claims must be adjusted and settled, and a release given in full for all damages against the city must be signed by the bidder before the estimates would be allowed, and any claim not so made shall be waived and action thereon barred, where the city never exacted such a release in full for damages before allowing estimates or making payment under the contract, a waiver under the stipulation was not made out because of a failure by the bidder to file a claim with the board of public works before final settlement and payment of the contract price by the city.—Supreme Court of Iowa. 127 N. W. R., 66.

## Validity of Bonds—Ice Plant

*Holton et al. v. City of Camilla et al.*—The act of the General Assembly chartering the City of Camilla provided in the twenty-eighth paragraph of section 21 that the city should have the power "to acquire by purchase or otherwise, own and equip ice plants and cold storage plants, in connection with waterworks system of said city or otherwise, and to do and perform all acts in connection with ownership and operation of and conduct of same, ordinarily incident to the operation and conduct of same, and to issue bonds of said city, for the purpose of acquiring, owning, and equipping or operating said plants." An ordinance passed by the municipal authorities calling an election for the purpose of having determined the question whether or not bonds of the municipality should be issued provided: "Said bonds to be issued for the purpose of procuring the sum of \$12,000, which sum is to be used as follows: The same to be used in acquiring, equipping, enlarging and repairing the electric and waterworks plant and system, and acquiring additional real estate upon which to locate and operate said plant; and in acquiring, establishing, equipping, and operating an ice plant in connection with the waterworks and electric lights and other public utilities of the City of Camilla." Held, the operation of an ice plant by the municipal authorities of the City of Camilla, in connection with the electric light and waterworks plant, for the purpose of furnishing ice to the inhabitants of the city, is not in violation of the Constitution of this State, or otherwise illegal; and the issuance of bonds by such municipality to raise money to establish and operate such ice plant was not illegal, where the assent of two-thirds of the qualified voters of the city had been obtained at an election held for the purpose of determining whether or not such bonds should be issued.

After a judgment was rendered confirming and validating the issuance of the bonds in proceedings had under the validation act of 1897, citizens and taxpayers of the municipality could not for the first time attack the judgment on the ground that the money to be raised from a sale of the bonds was to be used for different purposes, and "neither said ordinance, nor the published notice of the election published in pursuance thereof, provided or gave the voters of said city any opportunity to vote for or against the bonds for each of said specified purposes separately, and hence said ordinance and said notice did not call and give notice of respectively as to each of said debts and purposes of an election 'for that purpose,' as required by the Constitution of the State of Georgia, embodied in Code, section 5893."—Supreme Court of Georgia, 68 S. E. R., 472.

## Refunding Bonds—Power to Issue

*Veatch v. City of Moscow et al.*—Under the Constitution of this State, the Legislature has authority to empower municipalities to negotiate for the sale and issuance of refunding bonds without submitting the question to the electors of such municipality where it can be done to the profit and benefit of the municipality and without incurring any additional liability.—Supreme Court of Idaho. 109 P. R., 722.

## Public Improvements—Liability for Cost

*City of Meriden v. West Meriden Cemetery Ass'n.*—Provisions of a city charter as to the assessment of damages and special benefits from public improvements, and requiring notice of assessments, have no relation to orders passed under provisions that, if any proprietor shall neglect to curb a sidewalk or gutter when directed by the Court of Common Council, the latter may cause the same to be done, and order it to be paid by the proprietor.—Supreme Court of Errors of Connecticut. 76 A. R., 515.

## Employees—Compensation During Sickness

*Neal v. City of New Haven.*—The examiner of records, one of the clerical force in the department of public works of a city, appointed by the director of such department, being sick, was, before he recovered enough to do any work, notified that his services were no longer required. Held that, being simply an employee, he was entitled to no pay when doing no work, so that, though he was paid for part of such time, this was matter of grace, and he could not recover for the balance.—Supreme Court of Errors of Connecticut. 76 A. R., 543.

## NEWS OF THE SOCIETIES

### National Firemen's Association.—

The Thirteenth annual convention of the association was held in Rochester, N. Y., Aug. 17-19, with about 100 delegates in attendance. President John U. Sherwood, Neosho, Wis., introduced Commissioner of Public Safety Owen, who, in the absence of Mayor Edgerton, welcomed the delegates in behalf of the city. Chief H. R. Delfs, Lansing, Mich., responded. Brief addresses were made by T. E. Smith, Akron, O.; Chief P. F. Schraeder, Baton Rouge, La.; Chief Walter Buell, Kansas City; Chief J. W. Austin, Pennsylvania, and Thomas J. Heaver, Pittsford. Capt. Bert Fisher, secretary, mentioned some of his observations on the Rochester Fire Department made during the few days before the opening of the convention. The blacksmith shop on wheels and the department shop where wagons are built were favorably commented on. At the second day's session President Sherwood delivered his annual address, containing his recommendations to the association. He said that a few State firemen's associations have been at work trying to place upon the statutes of their States laws for the protection of their firemen, but not much success could be reported. He referred to fire marshal laws, which are producing good results. The subject of over-insurance as tending to increase fire losses was touched on. In conclusion the speaker said:

I am sorry to say that the presenting of the objects and benefits for which the National Firemen's Association was organized have not had the advertising by the officials elected for that purpose that should have been done, and I recommend that a change be made at this convention for a more effectual plan of work. The need of a more thorough understanding of the workings of the firemen's organizations of the United States presents itself to our observation every day, but this means of information could be readily obtained if there was a wider circulation of the firemen's publications, and this could be done if the fire publications were a little more active in letting the firemen know what good newspapers and journals they were printing, and that the officials of the Fire Departments would exert themselves to have their members subscribe for these journals. A good fireman is a good reader and a close observer.

The following papers were then presented: "The Value of Building Inspection as a Means of Fire Prevention," H. L. Reade, Bismarck, N. D.; "Work of the Last Legislative Committee in Louisiana State Association and Results," Chief Jasmin Tobias, Donaldson, La.; "The Danger and Proper Storage of Gasoline," Captain J. L. Crapo, Chicago; "Rubber Tires and Sizes," G. R. Talbot, Akron, Ohio; "The Development of the Fire Alarm Telegraph in the United States," A. Tinker, New York City; "Is Automobile Apparatus Both Certain and Economical?" Chief H. R. Delfs, Lansing, Mich.; "Why Does Not the East Come Into the National Firemen's Association?" My Opinion of the National Firemen's Association and Its Future," Chief C. E. Swingley, St. Louis.

On the last day's session T. E. Smith, Akron, O., read a paper prepared by Chief J. T. Williams, Charlottesville, Va., on "How It Feels to Be the Oldest Fireman in the World." St. Louis, Mo., was chosen as the meeting place

next year. Officers elected were as follows: Chief Hugo R. Delfs, Lansing, Mich., president; Chief T. W. Johnston, Minnesota, vice-president; Capt. Bert Fisher, Chicago, secretary; Chief Charles Hemp, Andarko, treasurer; J. W. C. Austin, York, Pa., national organizer.

Appropriate resolutions thanking the city authorities of Rochester for the attention shown were passed just before the adjournment.

**New York State Firemen's Association.**—The thirty-eighth annual convention at Watertown, Aug. 16-18, was one of the largest ever held. Owing to the excessive heat the reading of papers in the Auditorium was omitted and the papers will be printed. John B. Merrill in an address claimed that the association, which is supposed to receive two per cent of the premiums of foreign insurance companies, is not receiving it. Last year's officers were re-elected as follows: John L. Kyne, president; Thomas Honohan, secretary; Fred A. Davis, first vice-president; William B. Carpenter, second vice-president; John P. Powers, treasurer.

**Iowa State Association of Police Chiefs.**—A State Board of Identification with headquarters in Des Moines for the purpose of locating criminals, a State detective force to supplement the work of the police and sheriffs and the adoption of a Civil Service law for Police Departments will be the three main reforms advocated by A. C. Miller, President of the State Association of Police Chiefs during the annual convention of the association to be held in Des Moines for several days beginning August 25. President Miller and Jack Deneen of Sioux City, secretary of the association, issued more than 800 invitations and it is expected that between 200 and 300 men will attend the convention. All town marshals and other police authorities in the State are eligible to membership in the association.

**American Society of Engineer Draftsmen.**—On June 18 the first steps were taken to form a permanent organization embracing every branch of the profession, including mechanical, electrical, civil, architectural, marine, sanitary, automobile and aeronautical draftsmen, and the first meeting was held July 27. The formation of this organization, which was conceived by E. Farrington Chandler, marks the first effort to form a national society among draftsmen. Draftsmen have long felt the need of an organization, both from an engineering and a fraternal standpoint, which would be the means to establish a higher professional standing and place them on a recognized professional plane, in the field of engineering. The benefits of an organization of this character are well understood. A decided feature of the society is the opportunity offered juniors, affording means by which they may become familiar with the demands of practice, in the drafting room, while students or employees in other branches of industrial work, as is also an employment bureau co-operating with employers. The qualifications for membership are such, that a standard will be established, as in other branches of engineering, and it is the aim of the Society to maintain this standard, and to secure recognition from every concern employing draftsmen. The officers chosen are E. Farrington Chandler, president; Wm. B. Harsel, vice-president, and Harry L. Sloan, secretary and treasurer, with headquarters at 116 Nassau st., New York.

**County Superintendents, Eighth District, New York.**—All the superintendents in the district but one met at Canandaigua Aug. 5 and 6, to talk over their work and for mutual exchange of experiences. The question of stone macadam roads, built by the towns, was the most important subject of discussion and the one subject more than any other which brought about the convention. At the Rochester convention and inspection and study trip of all of the State county superintendents this subject came in for much study and was not definitely settled. The town roads of the town of Canandaigua had been repeatedly mentioned in the previous discussion and the first work of the road men on Friday was a careful inspection of these stone roads, built by the town at a cost much less per mile than the State roads are built. In two autos the superintendents rode east as far as Geneva and south, west and north out of Canandaigua. The opinion of the superintendents was that the Canandaigua roads were the equal of some State roads but hardly up to the average. They attributed the good quality and low cost of the roads to the good road-building outfit of machinery owned by the town.

**American Association of Commerce and Trade, Berlin, Germany.**—This organization, an American Chamber of Commerce, founded seven years ago by Americans, is run by Americans on American lines for the purpose of promoting American trade with Germany and German trade with the United States. Its specialty is assisting American business firms to start branches in Germany. The organization has the largest and most complete reading room in the empire, receiving 30 daily American papers and 150 trade publications, all United States Government reports and statistics, all the directories of the leading American and German cities and the principal telegraph codes, all of which it places at the disposal of American business men and American travelers visiting Berlin. This association appeals to American business men intending to do business in Germany, whether temporary or permanent, as it can help them as no other institution or commercial agency can. Information is given regarding business conditions in Germany, agents are found, and inquiries answered thoroughly and satisfactorily. Its offices are in the Equitable Building, Friedrichstrasse 59-60, Berlin.

**International Association of Municipal Electricians.**—At the fifteenth annual convention, Rochester, N. Y., September 6-9, the following papers are to be presented, according to the secretary, Frank P. Foster, Corning, N. Y.:

"Wireless Telephone and Telegraph," John W. Kelly, Jr., Camden, N. J.

"Lightning Protection," Walter M. Petty, Rutherford, N. J.

"Mercury Arc and Other Rectifiers," H. G. Kennedy, Rochester, N. Y.

"Relation of the Telephone to the General Organization of Fire Department Service," H. C. Bundy, Watertown, N. Y.

"Underground Work," J. B. Yeakle, Baltimore, Md. and Clarence R. George, Houston, Tex.

"Modern Police Signal System," Jos. B. Smith, Rochester, N. Y.

"City and National Code Rules and the Relation of the City and Underwriters' Inspectors," R. A. Smith, Norfolk, Va.

"Inductive Loads of Low Power Factors," A. S. Hatch, Detroit, Mich.



**Indiana Electric Light Association.**

—The question of a public utility commission was a prominent topic at the annual meeting, Indianapolis, Aug. 17. President C. C. Perry, in his annual address, took the ground that Indiana is not ready at this time for such a commission. Charles A. Bookwalter, of the Merchants' Heat & Light Company, was of the opinion that public utility companies would have no cause to object to a commission organized and conducted along proper lines. Papers were read on the following subjects: "Ornamental Street Lighting," by E. Darrow; "Commercial Value of Low Head Water Power," by F. A. Bryan, South Bend; "Relations of Purdue University to Electric Public Service Companies of Indiana," by Prof. C. Francis Harding; "Cost of Light," by M. D. Cooper; "Municipal Ownership in Indiana," by R. A. McGregor, Connersville; "Methods of Introducing Current-Consuming Devices," by J. K. McDonough, of the General Electric Company; "New Developments in Heating Devices," by W. F. Hadaway, of the Westinghouse Electric and Manufacturing Company; "Feeder and Generator Regulators," F. W. Shackelford, of the General Electric Company; "Steam Heating Construction," G. M. Williams, Indianapolis. The following officers were elected: President, F. A. Bryan, South Bend; vice-president, S. B. Harting, Elwood; secretary-treasurer, J. V. Zartman, Indianapolis.

**American Water Works Association.**

—Secretary J. M. Diven writes that unless some change is made which he thinks is unlikely, the next convention of the association will be held in Rochester, N. Y., the last week in May, 1911.

**Northwestern Improvement Association, Dayton, O.**—At a recent meeting the following officers were elected: President, George M. Leopold; vice-president, Russell Elliott; secretary, John H. Weyel; treasurer, Dr. H. W. Dickinson; sergeant-at-arms, George Malone.

**South Erie, Pa., Improvement Association**—At a meeting Aug. 18 resolutions were passed stating the association's position on the trolley franchise question and the commission form of government. These were as follows:

Resolved, First, that it is the sense of the South Erie Improvement Association that no franchise for the use of city streets be given except on equitable, just and legal restrictions and safeguards such as provide paving certain portions of streets, meeting of cost of occupied portions of pavement already laid, subways and municipal improvements and for satisfactory mutual business relations with other companies on transfers and the rates at which tickets are to be sold—with suitable regulations for the transportation of working men at certain hours of the day and with such other restrictions as may be deemed just and equitable by the city authorities specified in the franchises.

Resolved, Second, that all franchises shall be granted on condition that said street railway company pay to the city at least 2½ per cent of the gross receipts for the first 25 years and that the city of Erie should reserve the right to change, alter or amend said franchise at any time after that period in such manner as not to interfere with the legal rights of said company to meet the payment of all operating expenses actually and fairly and to pay a fair return on capital invested as determined by appraisement by corporation within the city limits.

Resolved, That the South Erie Improvement Association requests the committee, J. B. Cessna, Rev. James P. Irwin and L. D. Davis, to co-operate with similar committees of other organizations of the city of Erie to formulate, and have the coming legislature enact careful, efficient and liberal laws relative to government by commission in which the principles of the initiative, referendum and recall are recognized.

**Calendar of Meetings**

- August 23-25.**  
League of Third-Class Cities of Pennsylvania.—Annual Convention, York, Pa.—Mayor Jacob E. Weaver, President, York, Pa.
- August 23-26.**  
League of American Municipalities.—Annual Convention, St. Paul, Minn.—John MacVicar, Secretary, City Hall, Des Moines, Ia.
- August 23-26.**  
International Association of Fire Engineers.—Annual Convention, Syracuse, N. Y.—James McFall, Secretary, Roanoke, Va.
- August 24-26.**  
Virginia State Firemen's Convention.—Alexandria, Va.—G. C. Cummings, Secretary, Portsmouth, Va.
- August 25.**  
Iowa State Association of Police Chiefs.—Annual Convention, Des Moines, Ia.—A. C. White, President, Sioux City, Ia.
- August 30-31.**  
New York State Police Chief's Association.—Eleventh Annual Convention, Schenectady, N. Y.—William Bell, President, Auburn, N. J.
- September 5.**  
Greene County Firemen's Association.—Twenty-second Annual Convention, Tannersville, N. Y.
- September 5.**  
Rhode Island State Firemen's League.—Annual Muster, Manville, R. I.
- September 5-9.**  
American Public Health Association.—Annual Meeting, Milwaukee, Wis.—W. C. Woodward, Secretary, Washington, D. C.
- September 6-8.**  
Association of Edison Illuminating Companies.—Annual Meeting, Thousand Islands, N. Y.—Walter Neumüller, Assistant Secretary, 55 Duane St., New York, N. Y.
- September 6-9.**  
Pacific Coast Association of Fire Chiefs.—Eighteenth Annual Convention, Stockton, Cal.—A. A. Sumner, Secretary, Anacortes, Wash.
- September 6-9.**  
International Association of Municipal Electricians.—Fifteenth Annual Convention, Convention Hall, Rochester, N. Y.—Frank P. Foster, Secretary, Corning, N. Y.
- September 8-12.**  
Michigan Gas Association.—Annual Meeting on Steamer sailing from Detroit, Mich.—Glenn R. Chamberlain, Secretary, Grand Rapids Gas Light Co., Grand Rapids, Mich.
- September 14-15.**  
Connecticut State Firemen's Association.—Twenty-seventh Annual Convention, Waterbury, Conn.
- September 14-16.**  
League of Michigan Municipalities.—Annual Convention, Lansing, Mich.
- September 20-22.**  
Central States Water Works Association.—Convention, Indianapolis, Ind.
- September 20-23.**  
Kansas State Volunteer Firemen's Association, Eureka, Kan.
- September 21-23.**  
Massachusetts State Firemen's Association.—Thirty-first Annual Convention, Lowell, Mass.—Burton Steere, President, Springfield, Mass.
- September 21-23.**  
Colorado Electric Light, Power and Railway Association.—Annual Convention, Colorado Springs, Col.—J. C. Lawler, Secretary, P. O. Box 938, Colorado Springs, Col.
- September 21-23.**  
New England Water Works Association.—Annual Meeting, Rochester, N. Y.—Willard Kent, Secretary, Narragansett Pier, R. I.
- September 21-23.**  
Massachusetts State Firemen's Association.—Thirty-first Annual Convention, Lowell, Mass.
- September 26-30.**  
National Irrigation Congress.—Annual Meeting, Pueblo, Col.—Arthur Hooker, Secretary, Pueblo, Col.
- September 28.**  
New Hampshire State Firemen's Association.—Convention, Meredith, N. H.
- October 6-8.**  
American Automobile Association in cooperation with the National Grange, Farmer's Union, American Road Builders' Association, U. S. Office of Public Roads, and National Association of Automobile Manufacturers.—Third National Good Roads Convention, St. Louis, Mo.
- October 10-11.**  
Massachusetts Police Association.—Annual Convention, Holyoke, Mass.
- October 10-14.**  
American Street and Interurban Railway Association.—Annual Convention, Niagara Falls, Ontario.—H. C. Donecker,

Secretary, 29 West 39th St., New York, N. Y.

**October 11-16.**

American Society of Municipal Improvements.—Seventeenth Annual Convention, Erie, Pa.—A. Prescott Folwell, Secretary, 239 W. 39th St., New York, N. Y.

**November 14-18.**

National Municipal League.—Annual Meeting, Buffalo, N. Y. Clinton Rogers Woodruff, Secretary, North American Building, Philadelphia, Pa.

**November 21-23.**

City Commission Congress.—Meeting, Galveston, Tex.—R. E. L. Giles, Secretary, Galveston, Tex.

**PERSONALS**

BURT, FRANK S., Chief of Police, Wichita, Kan., has resigned.

CHESTER, J. N., formerly Chief Engineer of the American Water Works & Guarantee Company, and Thomas Fleming, Jr., formerly Principal Assistant Engineer in Charge, Design and Construction Section, Pennsylvania State Department of Health, announce the formation of a partnership for consulting engineering, with offices in the Union Bank Building, Pittsburg, Pa. The field to be covered will embrace water works and purification plants, sewerage and sewage disposal, power plants, reinforced concrete construction, appraisements, reports, operation and management of water, power and sewage disposal plants. They are licensees under negative head filter patents.

CROSS, JAMES P., Cleveland, O., has been appointed Engineer of Construction in the Building Department, succeeding E. F. Gibbons.

DALY, CHARLES DUDLEY, Boston, Mass., has been appointed to the office of Fire Commissioner. Mr. Daly is a graduate of Harvard and West Point.

DAVIS, O. R., Lucedale, Miss., has been elected Mayor.

ELIOT, DR. WALTER G., New York, N. Y., has been appointed Engineer-in-Charge of the Topographical Bureau, Borough of Queens, New York City, succeeding Robert Crowell.

HARVEY, JOHN, Hamilton, O., has been elected City Engineer of Oxford, O.

HERING, RUDOLPH, New York, N. Y., Consulting Engineer, has been selected to make a preliminary investigation of the best method of sewage disposal for the city of Trenton, N. J.

HODGE, R. J., Corsicana, Tex., has been elected Mayor under the new commission form of government.

KELLY, C. E., El Paso, Tex., has been elected Mayor, vice W. F. Robinson, who was killed at a fire.

MORAN, WILLIAM J., Watkins, N. Y., has been elected Chief of the Fire Department.

MUELLER, HENRY, Decatur, Ill., Vice-President and Mechanical Expert of the H. Mueller Mfg. Co., died suddenly August 13.

PEARSE, T. E., City Engineer of Newport News, Va., has been re-elected; also the following: City Attorney, J. A. Massie; City Clerk, Floyd Hudgins; City Physician, J. W. Ayler, and City Electrician, F. Goodwin, all re-elected; also Christian K. Messick, City Auditor, to succeed John W. Read, and Dr. Aaron Jeffery, Health Officer, vice T. J. Pretlow.

STEWART, A. C., Los Angeles, Cal., has been appointed Superintendent of the Police and Fire Alarm Telegraph Bureau.

THAMES, H. D., Picayune, Miss., has been elected Mayor.

WILLIAMS, PROF. GARDINER S., University of Michigan, Ann Arbor, Mich., has been engaged to prepare plans and specifications of the new sewage pumping station at Grand Rapids, Mich.

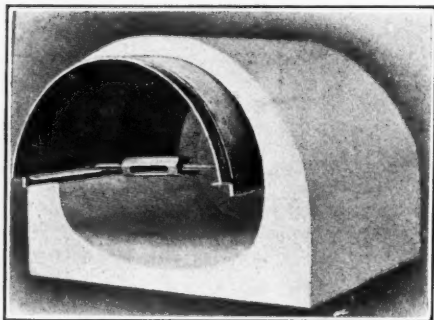
## MUNICIPAL APPLIANCES

### Blaw Collapsible Culvert Molds

SEVERAL kinds of collapsible steel centers are made by the Blaw Collapsible Steel Centering Co., Westinghouse Building, Pittsburg, Pa. The one most generally known, perhaps, is the special steel culvert mold. This consists of the collapsing members, which comprise a rod running through the center of the mold with a hand wheel at one end and a toggle-joint apparatus connecting it with the steel. The illustrations presented here, however, show the Dooley adjustable center and the half round forms. In using the Dooley center the procedure is as follows: A concrete dish is made on the bottom of the trench, as is done in all



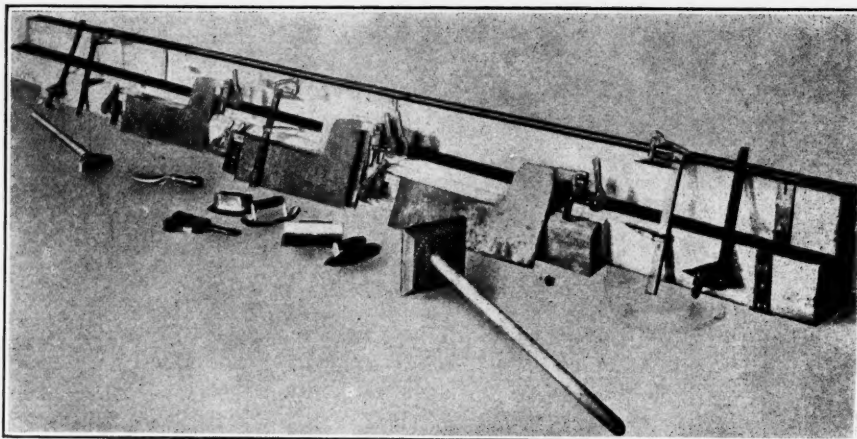
DOOLEY COLLAPSIBLE CULVERT FORM



BLAW HALF-ROUND CULVERT FORM

cases; the center is placed on this dish and then connected. After the concrete has set the turnbuckle is tightened and the mold is easily withdrawn. Any number of sections, which are built in 5 and 10-foot lengths, and any diameter from 18 to 72 inches, may be joined together by using one of the ribs half across the joint, or by putting one a short distance inside of the other. The apparatus is adjustable, simply constructed and economical.

The use of the Blaw half round type makes possible the construction, with one set of forms, a circular culvert, an egg-shaped, a horseshoe-shaped or a culvert with straightened side walls and a circular top. The full circular culvert, with half round forms, is constructed in the following manner: The invert is built up to the spring line; after the concrete is set the forms are withdrawn and used as crown forms and the crown concreted. Egg-shaped and horseshoe-shaped culverts are constructed by screeding the invert to the desired shape and using the half round forms on the crown. Culverts



APPLIANCES FOR CONSTRUCTING CONCRETE CURB AND GUTTER

with straight side walls and a circular top are also easily built with the half round form. With one set of forms the carrying capacity of the culvert can be increased or decreased by increasing the height of the side walls. Ordinary wood, on which there is little or no wear and tear when used on the straight sides, is all that is necessary.

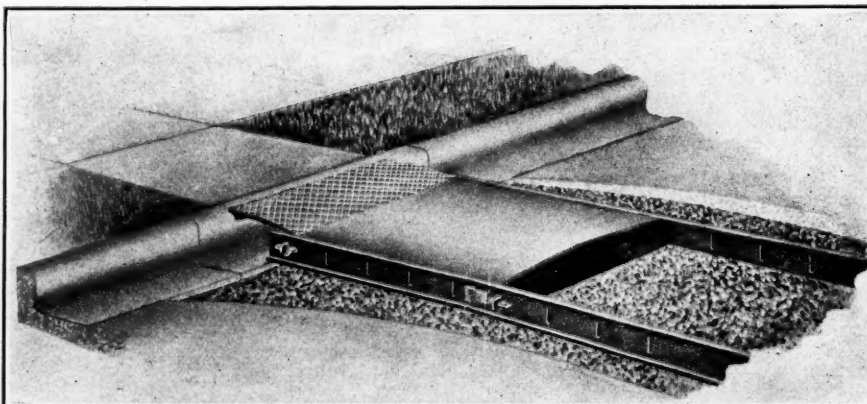
### Curb and Gutter Forms

THE reproduction shows the combined curb and gutter forms made by the Century Cement Machine Company, Rochester, N. Y., who are also the manufacturers of the Hercules cement stone machine. Century forms are made of thoroughly seasoned pine lumber 2 inches thick and bound with quarter-inch iron. This keeps them absolutely true and rigid under all conditions. Heavy sheet steel dividing plates cut the material through to the bottom and these are provided with quick-locking clamps, making the setting up and knocking down of the forms an easy, simple operation. The forms are 15 feet long, divided into three 5-foot sections, thus making it possible to make and lay 15 feet at each operation without changing or moving the forms. The outfit complete consists of all the forms with all the necessary tools, such as tampers, edgers, jointers, etc. Regular stock outfits are designed for making 18-inch gutter with 6-inch curb. The company is prepared, however, to furnish Century forms for making any other sizes required. Curbing and gutter made with Century forms does not, it is claimed, require expensive iron edging, as all edges are perfectly rounded, thus preventing chipping or breaking of the edges when coming in contact with wagons, trucks, etc.

### Crosswalk Forms

A USEFUL device for the concrete contractor, the crosswalk form, has been placed on the market by the Hotchkiss Lock Metal Form Company, Binghamton, N. Y. They are similar to the Hotchkiss sidewalk forms in operation. The side-pieces, however, are only five feet in length, so as to conform more easily to the crown of the street. The cross-pieces, or division-plates, are 5 feet long and are slightly convex on their upper surface. The strike-off is made on the cross-pieces, thus arching the crosswalk slightly. The cross-piece nearest the curb is reversed, i.e., the straight edge uppermost, and is set next to the gutter. The gutter is bridged with an iron plate, for which a shoulder is left in the curb and the walk. The crosswalk forms are 6 inches in height, so that the walk may be made 6 to 8 inches thick, according to specifications. The company sells crosswalk forms only in sets. A set consists of 10 5-foot side-pieces, 6 5-foot division-plates, and the necessary keys, and is sufficient to lay a number of crosswalks daily. A set weighs about 240 pounds. A glance at the cut will make clear the numerous advantages of the crosswalk forms. It is not necessary to drive stakes down into the hard street foundation to hold wooden forms bent to grade. Lumber is saved. The strike-off arches the surface without further work. The economy in labor is said to be even greater than with the metal sidewalk forms.

The use of the regular form for sidewalk work is claimed to save not less than two cents per square foot for labor and materials. Other claims are perfect work even with unskilled labor.



GUTTER CROSSING AND CONCRETE CROSSWALK



### Monarch Valves for Water Works

THREE types of Monarch valves of special use in water works construction, manufactured by the Monarch Valve and Manufacturing Co., Warren, Mass., are shown below.

All valves have the loose neck nut arrangement with just enough lost motion between the parts to allow the stem to be eased off after the valve is closed, thus relieving the stem at once of the severe strain which exists in valves not so constructed. It also overcomes the objection to a loose fitting spindle entering directly into the plug, and insures a good working fit, the loose neck allowing the plug to adjust itself to the seats. All inside screw valves are made with stationary spindles and fitted with detachable wheels. All outside valves are made with bolt fol-

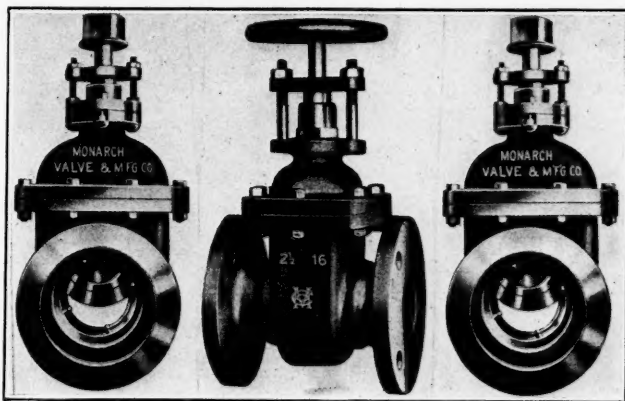
lower stuffing boxes, and can be packed under pressure. These valves are designed to meet the varying working conditions, and have a factor of safety amply large to withstand the stresses of expansion and water hammer. All valves are made interchangeable. Particular attention is given to the materials entering into their construction. They are manufactured by a force of skilled mechanics who have had years of experience in this line of work and are presenting a valve which is claimed to be the best on the market.

The first illustration shows the list No. 15 valve, adapted for low pressure water lines, street mains, pump suction, etc., for 150 pounds working pressure and allowances are made to cover the ordinary stresses of water hammer and expansion. These valves are made with iron bodies, caps and nuts. Bronze plugs up to and including 4 inches in diameter, 5-inch and larger have iron plugs faced with bronze, bronze spindles and renewable bronze seats. All valves are fitted with bolt follower stuffing boxes and are packed ready for use. All valves furnished with 2-inch square nut unless otherwise ordered. All valves turn to right to open.

Illustration No. 2 shows list No. 16 valve, adapted for water service for 200 pounds resisting pressures and allowances are made to cover the ordinary stresses of water hammer and expansion. They are made from medium heavy patterns with iron bodies, caps and wheels, and have bronze plugs up to and including 4½ inches in diameter. Five-inch and larger have iron plugs with bronze faces and all valves have renewable bronze seats. Inside screw also outside screw valves for water. Outside screw valves for steam, 4-inch valves are fitted with bronze spindles, and smaller, have bronze spindles; larger sizes have steel spindles. All valves have screw gland bolt follower stuffing boxes and are packed ready for use. Outside screw valves have the self-packing feature which enables them to be packed while open and under pressure. Heavy indicators and sliding stem and lever furnished at an additional cost. All valves turn to the left to open.

In No. 3 is shown list No. 16 valve, adapted for use on street mains of

water works systems, made strong and heavy to overcome the stresses of water hammer and expansion, being designed for a working pressure of 200 pounds. These valves are made with iron bodies, cap and nuts, bronze plugs up to and including 4 inches in diameter; 5 inches and larger have iron plugs faced with bronze, bronze spindles and renewable bronze seats. All valves fitted with bolt follower stuffing



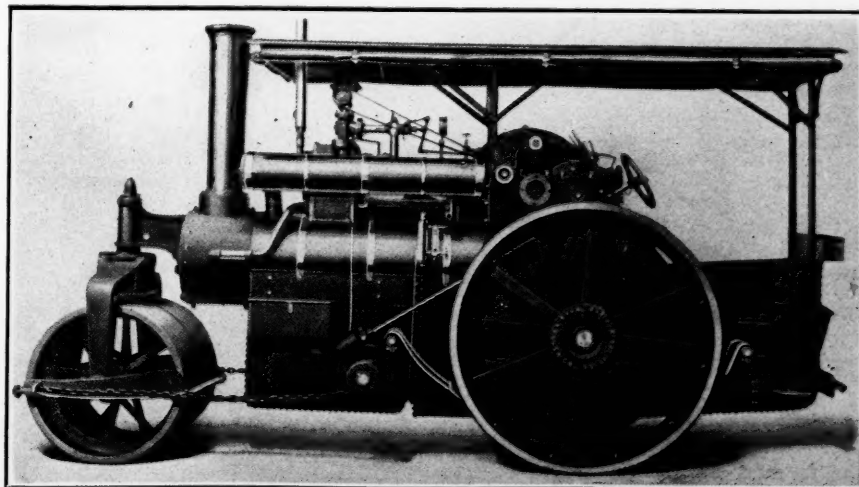
NO. 1, LOW PRESSURE NO. 2, MEDIUM NO. 3, HIGH PRESSURE

boxes, and are packed ready for use. Special features such as indicators, etc., furnished at an additional cost. All valves furnished with 2-inch square nut unless otherwise ordered. All valves turn to right to open.

### Steam Roller with Quarter Century Record

A LITTLE more than twenty-five years ago there was no American steam road roller, the few in use in this country being of English construction, generally too heavy for American conditions. About this time the Kelly-Springfield Road Roller Company, Springfield, Ohio, began the manufacture of steam rollers, designed as such, not modified traction engines, and planned to meet American needs. That the ideas of the company were good and the construction substantial is shown by the fact that of the seven rollers built in the first year all are now in service. From this beginning the company has progressed until now it has a capacity of two rollers a day. Some of the details which made this machine successful are worth considering. The boiler is practically the foundation of the steam roller. The Kelly-Springfield boiler is a quick-steaming locomotive type, double riveted at every seam with the

entire shell made in one piece, tested to 250 pounds hydrostatic pressure. The hydraulic pressed boiler heads are made from the company's own designs at their own plant. The throat sheets of the firebox are formed of heavy steel plates in special hydraulic presses. The firebox is built with hollow stay bolts, as in the best locomotive practice. There is a patented dry steam compartment above the boiler. A saddle casting is bolted directly to the boiler shell by means of a wide flange. The hollow end of the casting takes the king-pin. The back and top seams of the firebox, as well as the joints between it and the shell of the boiler, are made over heavy copper plates. This prevents straining these seams and permits quick and easy culling in case of accident. The boilers are covered right up to the smoke box by a thick layer of asbestos protected by Russian iron held in place by brass bands. The bed plate of the engine is cast independently of the cylinders and is permanently fastened to the boiler with heavy bolts and copper gaskets. Should a cylinder meet with an accident it is only necessary to replace the cylinder casting. The engine is of the slide valve type with valve rods passing through the valve chests in heavy bronze stuffing boxes. The crankshaft is of steel and is very heavy. A counterbalance is provided on each throw of the shaft, which, with the flywheel of liberal diameter, makes the engine smooth running and powerful. The eccentrics form part of the crankshaft proper, short eccentric rods leading to a Marshall type of reverse gear, carried in a substantial frame directly above the crankshaft. The rollers of this roller are large, a feature which makes the roller easy to start. They are beveled slightly to conform to the crown of the road. The forward wheel of the roller has a universal motion. The larger sizes, 15 tons and up, are provided with a compensating gear. A small pinion on the end of the two-speed countershaft meshes with the floating toothed ring of the compensating gear. On the inner face of this ring are several studs against which powerful double springs bear. These springs are carried in pockets cast for them in a spider, the latter being fitted with four heavy pinions, meshing on one side with a large bevel gear on the axle, and on the other side with a similar gear on the driving wheels. In driving the machine it is necessary to compress these springs between the studs on the toothed ring and those in the spider before the load can be picked up. This avoids shock and jar.



KELLY-SPRINGFIELD STEAM ROAD ROLLER

## TRADE NOTES

**Cast Iron Pipe.**—Chicago: There is a good demand for small lots from municipalities, particularly in the Northwest. Quotations: 4-in., \$27.50; 6 to 12-inch, \$26.50; 16-inch and up, \$25.50. San Francisco: There are a fair number of small orders, and inquiries are good. New York: General business is quiet, though there are more enquiries. Quotations: 6-inch, car loads, \$23.50 to \$24.

**Lead.**—Demand is good. Quotations: New York, 4.40c., St. Louis 4.31c.

**Asphalt Repairs.**—B. B. Colborne, representing the Equitable Asphalt Maintenance Company, Kansas City, Mo., recently gave a moving picture demonstration at Keith's Theatre, Altoona, Pa., of the operation of the company's machine for the maintenance of asphalt paving. About 450 feet of films, taken in Washington, D. C., of work done under the supervision of Government engineers, were shown.

**Hydraulic Machinery.**—The American Rotary Machine Company, Hartford, Conn., has been incorporated under Connecticut laws to take over all American patent rights of the Von Pittler system of rotary engines. A. K. Baylor, New York, is the president and treasurer; E. M. Sawtelle, Englewood, N. J., vice-president and assistant treasurer, and W. Baylor, New York, secretary. The company acquires the patent rights on a hydraulic transmission equipment for motor cars and a similar equipment for stationary work, two house service water pump sets, two water pumps for general work, a boiler feed pump, vacuum cleaner, water meter and an air compressor and vacuum pump. The executive offices of the company are at 103 Park avenue, New York.

**Pumping Engines.**—The additions to the Cincinnati plant of the Laidlaw-Dunn-Gordon Company, at Elmwood place, will be completed within a month. The improvements will double the capacity of the foundry and very much increase that of the machine shop.

**Pumps.**—In order to meet the rapidly expanding foreign and domestic demand for their products, it is announced that F. E. Myers & Bro., Ashland, O., will greatly increase the facilities of their plant. This company manufactures pumps, hay tools, etc., and a few years ago made it their aim to manufacture a "pump a minute." It is stated that this output has been reached but does not meet the demand. The company now proposes to enlarge its facilities to make "a thousand pumps per day," and to do this will erect a new foundry and install other facilities.

**Cast-Iron Pipe.**—At the Chattanooga, Tenn., works of the United States Cast Iron Pipe & Foundry Company preparations are being made for what will probably be the most active fall trade in their history. It is anticipated locally that within the next year or two the works will be largely increased to correspond with their growing importance in the company's business. There are few, if any, cities of the country where the operating conditions are better.

**Crushers.**—Heavy machinery, designed for an output of 500 to 600 tons of crushed rock daily, together with pulverizing mills, will be installed by the Wheeling Limestone Company, recently organized at Wheeling, W. Va.

**Gas from Wood.**—A plant for the manufacture of gas from waste wood is nearing completion in Waycross, Ga. The gas is to be used for power in gas engines and for heating. It is claimed that the gas is free from tar, which in the case of the gas from bituminous gas producers, often makes trouble in engine cylinders. The Ware County Light and Power Company is the owner of the plant.

**Cement.**—The outlook for cement for the current year is more promising owing to negotiations reported which took place at the commencement of this year regarding selling prices. Although the bringing about of an understanding relative to selling prices with Continental cement producers was not altogether unsuccessful, the efforts were not wasted as matters of importance were discussed in a friendly manner by the leading interests in the industry. Prices continue low, but there are signs of an increasing demand not alone in this country but for export also. Quotations: Lighter lots alongside dock, New York, Portland, per bbl., \$1.43; Rosendale, or natural, in wood, per bbl., \$.80@.90; German, Portland, per bbl., \$1.90@2.10.

**Concrete Mixers.**—The partnership heretofore known as the Hains Concrete Mixer Company having been dissolved, Peter C. Hains, late of the Corps of Engineers, U. S. A., formerly manager of that company, announces that he has transferred his interests to the Hains Concrete Machinery Company, Inc., Union Trust Building, Washington, D. C., of which company he is now president and manager.

**Water Meters.**—The American Valve & Meter Company, whose Cincinnati factory is now located on Gest street, has commenced work on a plant at 2833-49 Spring Grove avenue. The main building will be 62 x 173 feet, with an L 62 x 82 feet, all two stories, and of reinforced concrete construction. The company makes a specialty of switch stands and water columns for railroads, as well as water meters, and its production in the new quarters will be greatly increased. The equipment now in the Gest street plant will be moved, but some additional machinery will have to be provided.

**Shovels.**—The Baldwin Forging & Tool Company, manufacturer of spades, shovels and scoops, which is now operating at the Ohio Penitentiary, will remove from that institution on account of the operation of the Wertz law abolishing contract labor and will build a large plant at Parkersburg, W. Va. The buildings will be of brick and concrete and will occupy a ground space of about 100,000 sq. ft.

**High Grade Asphalt.**—The American Asphalt and Rubber Company, Harvester Building, Chicago, Ill., has issued a folder showing a map of the United States and Canada with the names of the cities marked on it where "Pioneer" asphalts have been exclusively used. It is a long list and widely distributed.

**Crushers.**—The Eureka Stone & Ore Crusher Company, Cedar Rapids, Ia., manufacturer of the Mitchell improved crushers, is considering the erection of an addition to its plant, approximating 60 x 140 ft., two stories, of brick and steel construction. Details of equipment have not been worked out.

**Rock Crusher.**—The Aiken Company, operating a rock quarry near Bakersfield, Cal., will install a large crusher, revolving screens, etc., shortly.

**Cast Iron Pipe and Fittings.**—The Glamorgan Pipe and Foundry Company, of Lynchburg, Va., established manufacturers for 25 years, have during the past year been making rapid strides in the western territory. An office was opened in July, 1909, at 431 the Rookery, Chicago, with J. R. Rice, Western Manager, since which time quite a tonnage has been placed to the entire satisfaction of the purchasers. The quality of material produced by this company is as good as the best, being the product of Virginia pig iron, noted for its tensile strength, etc., thereby giving castings the soft nature to cut, eliminating the probability of breakage of pipe in an endeavor to cut. In addition to cast iron pipe, they are also manufacturers of special castings of all descriptions, flange pipe and fittings, and of the patented Glamorgan compression fire hydrants, also valves.

**Stone Quarry.**—W. A. Story, manager for the Erie City Iron Works, Erie, Pa., has been elected vice-president of the S. B. Martin Company, recently incorporated for \$225,000, which will operate a stone quarry at Fiborn, Mich., on the upper peninsula.

**Street Car Fenders.**—The Rochester Trolley Guard & Fender Company has been incorporated at Rochester, N. Y., with a capital stock of \$50,000, to engage in the manufacture of appliances for trolley cars. The incorporators are W. F. Reichenbach, A. A. Prebler and C. W. Henning.

**Second-Hand Machinery.**—Wickes Bros., Saginaw, Mich., have sent out a monthly stock list of second-hand machinery, which includes machine tools and general machinery, engines, boilers, dynamos, motors, etc. The classification is in good form for reference.

**Rules.**—The Lufkin Rule Company, Saginaw, Mich., has decided upon a large increase in its output for the coming year, made necessary by the growth of trade, with consequent extension of its factory.

**Steam Shovels.**—The Marion Shovel & Dredge Company, Marion, O., has been incorporated with a capital stock of \$400,000 for the manufacture of steam shovels, dredges and similar equipment. An option on a 125-acre tract lying between the Hocking Valley and Pennsylvania railroads has been secured for a site. It is expected that sufficient stock subscriptions will be secured to start the erection of the plant in a short time. The incorporators are John D. Owens, Arthur E. Cheney, David W. Evans, Clifford A. Owens, Harry J. Earnhart, George D. Copeland and George B. Christian, Jr.

**Gas Engines.**—The Foos Gas Engine Company, Springfield, O., has operated night and day without a skip for 10 months except for enforced shutdowns for repairs and holidays. In spite of this the company is still as far behind orders as it was a year ago, and reports 1910 the most successful year in its history. It will probably begin soon the erection of a big addition, which will increase its erecting and testing floors to the point where it can take care of its big business without straining its organization on large orders for 25 to 50 of its horizontal engines, besides a large number of its multiple verticle type, in units from 20 to 500-hp.

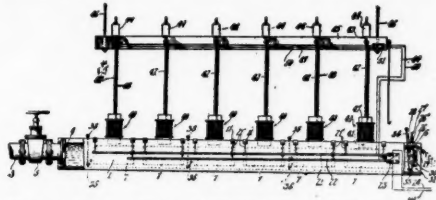
**Office Removal.**—The Roebling Construction Company has announced the removal of its offices in New York City to the thirty-second floor of the Metropolitan Tower.



## PATENT CLAIMS

**966,025. APPARATUS FOR PURIFICATION OF SEWAGE AND OTHER WATERS.** Lewis G. Lautzenhiser and Charles P. Chandler, Los Angeles, Cal., assignors of one-half to De Witt A. Slemmer and Shirley C. Ward, and said Chandler assignor of one-twentieth to W. K. Beese, Jr., Los Angeles, Cal. Serial No. 449,552. Renewed June 18, 1910. Serial No. 567,704.

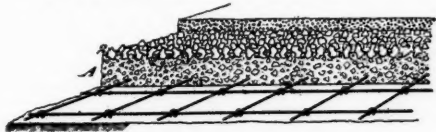
An apparatus for the deodorization of sewage, comprising a flume having a smooth, continuous, imperforate bottom, a plurality of sets of electrodes supported in



said flume, said electrodes extending in planes parallel to the length of the flume, means for supplying sewage at one end of said flume, a regulatable weir at the other end of said flume for discharging the fluid and controlling the level of the fluid in the flume, and a discharge gate located beneath the weir and between the weir and the bottom of the flume for emptying the flume, said discharge gate being normally held closed by the pressure of the water and being provided with manual operating means to open the same.

**965,562. OIL-CONCRETE ROADWAY.** Edward M. Chadbourne, San Francisco, Cal. Serial No. 543,557.

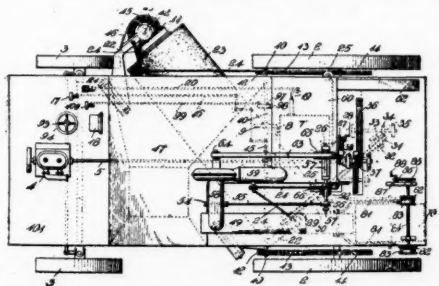
A method of roadway construction which consists in laying a foundation impervious to heavy oils and forming its surface into receptacles to prevent escape of the oil by drainage and in applying to said foundation



a top layer of oil and small size aggregate having a large percentage of voids filled by the oil, the percentage of oil being in excess in the bottom of the top layer in position to be supplied to the wearing surface by absorption.

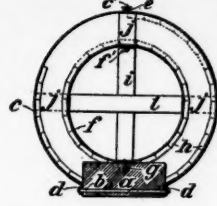
**965,764. STREET-CLEANING MACHINE.** Robert Harlin Stephens and William F. Davidson, New Castle, Pa., and David Carl Smith, Abingdon, Ill. Serial No. 507,774.

In a street cleaning machine, a wheeled supporting frame, a motor arranged in said frame, a driving mechanism operated by said motor, means to control said driving mechanism, a main sweeping brush, an auxiliary side or curb sweeping brush operated by the movement of said main brush to sweep the dirt from the curb into the path of movement of said main brush, a



brush operating mechanism operatively connected to said motor, means to throw said brush operating mechanism into and out of operation, a dirt elevating mechanism comprising a conveyor, a hopper carried by the machine to receive the dirt elevated by said conveyor, a take-up brush adapted to sweep the dirt gathered by the main sweeping brush into said elevating mechanism whereby the same is conveyed to the hopper, means to operatively connect said elevating mechanism and take-up brush with the motor, and raising and lowering mechanism connected to said brushes and elevating mechanism whereby the same are raised and lowered to inoperative and operative position.

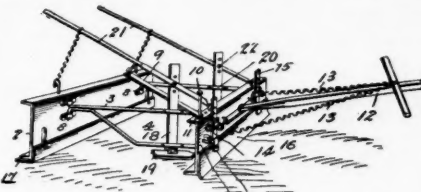
**966,044. FORM FOR MAKING CONTINUOUS CONCRETE CULVERTS.** William P. Nichols, Tucson, Ariz. Serial No. 543,677.



The combination with transversely arranged outer and inner hoops, of means for removably attaching said hoops to a longitudinal base adapted to form part of a culvert, longitudinal bars connecting said outer hoops directly at top, and longitudinal boards movably supported externally and internally by said hoops respectively.

**966,081. ROAD-SCRAPER.** Cyrus H. Casner, Hepburnville, Pa. Serial No. 564,880.

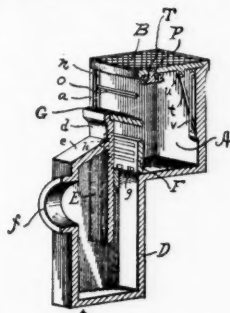
In a road scraper, the combination with a pair of pivotally connected frame members,



of means for securing the same in adjusted position, blades secured to said frame members, and means for elevating one of said members out of contact with the road.

**965,832. CATCH-BASIN FOR SEWERS.** Benjamin F. Nicholas, Renovo, Pa. Serial No. 508,571.

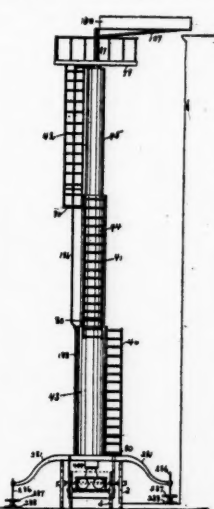
A catch basin for sewers, comprising a receiving chamber having an open front, a grid or grating for said front, an extension



from said chamber forming a trap, a gutter plate, and a frame arranged to slide vertically in the open front of the receiving chamber and engaging the gutter plate to lock the same in place.

**966,346. APPARATUS FOR FIGHTING FIRES.** Frederic C. Morton, Cambridge, Mass., assignor of one-half to William E. Brand, Boston, Mass. Serial No. 204,015.

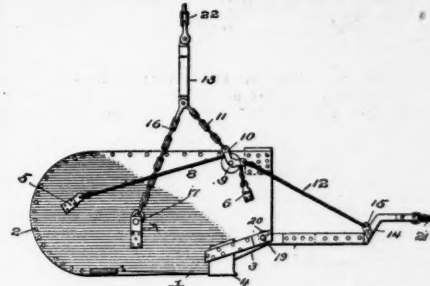
In an apparatus of the class described, in combination, a vehicle, an extensible support



pivally mounted thereon and provided with movable sections, an extensible ladder composed of sections connected with the sections of said support and arranged laterally with relation to one another, an extensible plunger located within said extensible support, a working platform pivotally connected with the innermost section of said support, a bridge pivotally mounted on said platform and extended laterally with relation thereto, a ladder supported by said bridge, mechanism to secure said ladder to said bridge, power-operated mechanism carried by said vehicle to elevate said support and to extend the said plunger and support, and means to control said power-operated mechanism, substantially as described.

**966,313. EXCAVATING-BUCKET.** John Crity Crenshaw, Augusta, Ga. Serial No. 525,320.

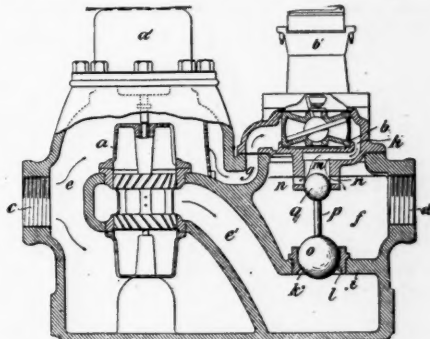
In a device of the character described, the combination with an excavating bucket, of ears secured to said bucket at the rear of its center of gravity, a supporting mem-



ber, flexible means connecting said supporting member and said ears, hauling mechanism secured to the excavating bucket at the front of its center of gravity, means for connecting the supporting member and hauling mechanism, and a cable secured to the bucket engaging said means for causing the bucket to remain in an upright position during the time the hauling mechanism is under tension.

**966,316. WATER METER.** Henry L. Dilts, New York, N. Y., assignor to Neptune Meter Company, New York, N. Y., a Corporation of New Jersey. Serial No. 550,255.

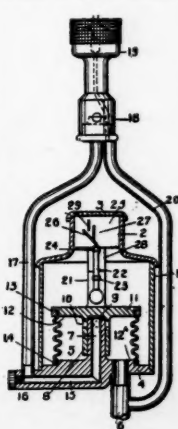
The combination of a relatively high-duty meter, a relatively low-duty meter, a common conduits having branches in which the two meters are respectively located, the inflow and the outflow being common to both branches, one of such branches having a spherical valve seat and the other of said branches having a straight port with



lateral outlets, a spherical valve body for co-operation with the spherical valve seat, a valve body for co-operation with the straight valve port fixedly united with the spherical valve body and means connecting the valve bodies to move together, whereby when one valve body is in position to close one branch, the other valve body is in open position to permit flow through the other branch.

**966,379. LIGHTING AND EXTINGUISHING DEVICE FOR STREET LAMPS.** Arthur John Bedford, Melbourne, Victoria, Australia. Serial No. 478,943.

In a device for automatically lighting from a pilot light, and extinguishing street



gas lamps, by variations of gas pressure, a flexible gas holder contained within a tubular metal casing and provided with a weighted diaphragm adapted to open or close a cylindrical valve depending therefrom and slidably socketed upon a gas outlet pipe, a counter-weighted arm pivotally mounted on a stem projected from said weighted diaphragm and having a projecting pin upon said cam to engage a V-shaped segment disposed above said flexible gas holder, a gas outlet pipe projected into the flexible gas holder to communicate with a gas passage in the bottom of said tubular casing provided with a screw plug to permit of the brushing out of any foreign matter contained in said passage, as substantially described and as shown.

## THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Concrete Work—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>STREET IMPROVEMENTS</b>				
Wisconsin	Superior	Aug. 26, 2 p.m.	Bldg. 6-ft. standard cement sidewalk on Hammond ave.	P. J. Ekstrand, Chm. Bd. Pub. Wks.
Florida	Palatka	Aug. 26	Bldg. 2 mi. hard-surface Seville road; also 2 mi., Satsuma.	R. F. Ensey, County Engineer.
Ohio	Cincinnati	Aug. 26, noon	Improving Harrison and New Haven road; \$3,000 bond.	Stanley Struble, Pres. Co. Comrs.
Wisconsin	Janesville	Aug. 26, 2 p.m.	Improve portions of 11 streets.	W. F. Carle, Chm. St. Assess. Com.
Utah	Ft. Douglas	Aug. 26	Bldg. roads, walks, catch basins, etc.	K. P. Williams, Constructing Q. M.
Indiana	South Bend	Aug. 26	Paving 2 streets with brick; cement curb and walks on four sts.	O. C. Bastian, Pres. Bd. Pub. Wks.
Florida	Palatka	Aug. 26	Bldg. 2 miles of hard-surfaced roads.	R. F. Ensey, County Engineer.
Wisconsin	Superior	Aug. 26, 2 p.m.	Improving number of streets.	P. J. Ekstrand, Chm. Bd. Pub. Wks.
Indiana	Newport	Aug. 26, 2 p.m.	Bldg. gravel road in Eugene township.	H. T. Payne, County Auditor.
Ohio	Toledo	Aug. 26, 10 a.m.	Grading, draining, macadamizing, Pickard road.	C. J. Sanzenbach, County Auditor.
Virginia	Richmond	Aug. 26	Bldg. 2.4 miles macadam and 15 miles soil road.	P. St. J. Wilson, State Hwy. Comr.
Massachusetts	Westfield	Aug. 26, 2 p.m.	Asphalt paving, 7,900 sq. yds., curb, 900 ft.	Oren E. Parks, Town Engineer.
Minnesota	Hallock	Aug. 27, 1 p.m.	Grading 57,661 cu. yds., ditching, 2,300 cu. yds.; twelve 20x24-in. and nine 30x24-in. concrete culverts, State road.	C. J. Hemmingson, County Auditor.
Pennsylvania	Harrisburg	Aug. 27, noon	Grading 13th st., from Hill to Sycamore st.	W. W. Caldwell, Highway Comr.
Nebraska	Lincoln	Aug. 27, 2 p.m.	Excavating and filling in a county road.	H. E. Wells, County Clerk.
Ohio	Uhrichsville	Aug. 27, noon	Improving 5,700 ft. Deersville road to Garmack's Lane.	N. F. Sproul, Trus. Mill Twp.
New Jersey	Vincetown	Aug. 29	Bldg. stone road.	Earl Thompson, Camden, Engineer.
Minnesota	Duluth	Aug. 29	Repairing State Highway No. 4.	A. R. Norman, County Auditor.
California	Richmond	Aug. 29, 8 p.m.	Oil macadam, concrete curb and gutter, etc., 9 blocks, First st.	I. R. Vaughn, City Clerk.
New York	New York	Aug. 29, 2 p.m.	Asphalt block paving, flagging, curbing, grading, etc.	Geo. McAneny, Pres. Man. Boro.
Massachusetts	Cambridge	Aug. 29, 11 a.m.	Furnishing 350,000 vitrified paving blocks.	Edward W. Quinn, Sec'y of Sts.
Nebraska	Omaha	Aug. 29, 2 p.m.	Grading Cass st., from 36th to 38th sts.	Geo. L. Campen, Asst. City Engr.
New York	St. George, S. I.	Aug. 30, noon	Furn. 20,000 gals. bit. road binder; grading, bridging, etc.	Geo. Cromwell, Boro. President.
New Jersey	Avalon	Aug. 30, noon	Bldg. 2,941 miles gravel road across swampland, bridging, etc.	R. Fendall Smith, Engineer.
Ohio	Cincinnati	Aug. 30, noon	Bldg. macadam driveways, etc., at New General Hospital.	E. L. Kennedy, Clk. Hosp. Comrs.
Ohio	Columbus	Aug. 30, noon	Improving portion of Columbus and Harrisburg pike.	John Scott, Clk. Co. Comrs.
Florida	St. Augustine	Aug. 31, 7:30 p.m.	Furn. portable asphalt plant and concrete mixer, 500 to 700 sq. yds. per day; also small shell crusher.	Philip Prioleau, City Engineer.
New York	Brooklyn	Aug. 31, 11 a.m.	Resurfacing with asphalt, iron slag, asphalt block, etc.	A. E. Steers, Boro. President.
Pennsylvania	Scranton	Aug. 31, 11 a.m.	Sheet asphalt paving on concrete, 3 sts.; brick on concrete, 1 st.	C. V. Terwilliger, Dir. D. P. W.
Illinois	Decatur	Aug. 31, 2 p.m.	Brick paving on 4-in. concrete, 2-in. sand, 2 sts., alleys, etc.	C. M. Borchers, Chm. Bd. Loc. Imp.
Ohio	Cleveland	Aug. 31, 11 a.m.	Paving Ridge Road No. 1 with Medina rock.	F. R. Lander, County Surv.
Illinois	Oaklawn	Sept. 1, 8 p.m.	Bldg. conc. sidewalks on 95th and other streets.	A. H. Singleton, Sec'y Bd. Loc. Imp.
Michigan	Smiths Creek	Sept. 1, 2 p.m.	Finishing 1 mile of state road.	Henry Neal, Imp. Clerk.
New Jersey	New Brunswick	Sept. 1, 11 a.m.	Bldg. gravel road, 4,000 ft.	A. W. Bissett, Clk. Co. Comrs.
Ohio	Columbus	Sept. 2, noon	Macadamizing South Davis road.	John Scott, Clk. Co. Comrs.
West Virginia	Huntington	Sept. 2, 1 p.m.	Grading, curbing, paving, etc., portions of sundry streets.	John Coon, Comr. of Streets.
New Jersey	Hackensack	Sept. 2, 2 p.m.	Improving Essex st., from Terrace ave. to Saddle river.	E. T. Galloway, Bd. Freeholders.
Pennsylvania	Harrisburg	Sept. 2	Bldg. 10,802 ft. road in Salisbury Twp., Lancaster Co.	Jan. W. Hunter, State Hwy. Comr.
Pennsylvania	North Braddock	Sept. 2	Paving 3 aves., also for 724 ft. 8- and 6-in. t.c. pipe, Main st.	C. A. Stewart, Boro. Engineer.
New York	Buffalo	Sept. 2, 11 a.m.	Paving 6 streets, 22 to 30 ft. wide.	F. G. Ward, Comr. Pub. Wks.
Maine	York	Sept. 3, 2 p.m.	Bldg. gravel road, 5,356 ft. long, K. and P. Trunk Line, Sec. 1.	Jan. P. Bragdon, Chm. Selectmen.
Maine	Kittery	Sept. 3, 2 p.m.	Bldg. gravel road, 7,144 ft. long, K. and P. Trunk Line, Sec. 2.	J. R. Philbrick, Chm. Bd. Selectmen.
Ohio	Columbus	Sept. 3	Furn. 10,000 gals. Tarriva, 3,200 tons crushed limestone, and 1,000 tons screenings; excav. 13,836 cu. yds.	F. M. Sayre, County Auditor.
Indiana	Marion	Sept. 5	Bldg. macadam road in Franklin township.	A. Y. Stout, County Auditor.
Indiana	Williamsport	Sept. 5, 1 p.m.	Bldg. gravel roads in Pine and Steuben townships.	R. L. Winks, County Auditor.
Indiana	Jeffersonville	Sept. 5, 10 a.m.	Bldg. 3,607 lin. ft. gravel road in Monroe township.	County Auditor.
Indiana	Tipton	Sept. 5, 10 a.m.	Bldg. gravel road in Cicero township.	J. F. Barlow, County Auditor.
Indiana	Decatur	Sept. 5, 10 a.m.	Bldg. macadam road in Preble township.	County Auditor.
Indiana	Vernon	Sept. 5, 11 a.m.	Bldg. 2 1-2 miles pike road in Bigger township.	T. L. Campbell, County Auditor.
Indiana	Rushville	Sept. 5, 2 p.m.	Bldg. macadam road on township line also Orange township.	J. M. Stone, County Auditor.
Iowa	Fort Dodge	Sept. 5	Asphalt paving, comb. cement curb and gutter, 3 streets.	C. H. Reynolds, City Engineer.
Ohio	Youngstown	Sept. 6, 11 a.m.	Grading hills, Ellsworth Twp.	C. T. Truesdale, County Treas.
Indiana	Vincennes	Sept. 6, 2 p.m.	Bldg. 1,600 lin. ft. gravel road in Vincennes township.	County Auditor.
Indiana	Wabash	Sept. 6, 2 p.m.	Bldg. gravel road in Waltz, macadam in Chester township.	County Auditor.
Florida	West Palm Beach	Sept. 6, noon	Furn. 6,000 cu. yds. live oyster shell at 2 points.	Board of County Commissioners.
New Jersey	New Brunswick	Sept. 6, 11 a.m.	Bldg. Kingston and Aqueduct road.	Director Bd. Freeholders.
Montana	Billings	Sept. 6	Concrete walks, 276,366 sq. ft.; curb, 33,099 ft.; cross, 13,873 ft.	J. D. Mathewson, City Clerk.
New Jersey	Camden	Sept. 6	Bldg. stone road from So. Pemberton to Vincentown.	Earl Thomson, 301 Market St., Eng.
Indiana	Crown Point	Sept. 6	Bldg. 5 gravel roads in North and one in St. Joseph Twp.	C. A. Johnson, County Auditor.
Indiana	Marion	Sept. 6	Grading and paving road in Franklin township.	A. Y. Stout, County Auditor.
Indiana	Paoli	Sept. 6	Bldg. 3,386 lin. ft. road in Northeast and 9,177 ft. Fr. Lick Twp.	A. B. Ham, County Auditor.
New York	Bronxville	Sept. 6, 8 p.m.	Grading and paving Midland ave.; Chambers & Hone, 1 Liberty st., New York City, Engineers.	Frank Dinsmore, Village Clerk.
New Jersey	New Brunswick	Sept. 6, 11 a.m.	Bldg. 2.56 miles stone road for county.	P. H. S. Hendricks, Div. Bd. Fr'hlds.
Indiana	Peru	Sept. 6	Bldg. 7 gravel roads; total length 75,540 ft., 2 twps.	Chas. Griswald, County Auditor.
Indiana	Muncie	Sept. 7	Paving Wyson St.; cost \$26,333.	County Auditor.
New York	Mt. Pleasant	Sept. 7, 3 p.m.	Improving 2 roads, 0.67 and 0.78 mile.	E. F. Hennessey, Town Clerk.
Indiana	Lafayette	Sept. 7, 9 a.m.	Constructing 3 gravel roads.	J. P. Foresman, County Auditor.
Indiana	Lebanon	Sept. 8, 1 p.m.	Bldg. 2 1-2 miles gravel road in Sugar township.	County Auditor.
California	Oakland	Sept. 8, 2 p.m.	Bldg. asphalt roadway in Lakeside Park; bond, \$10,000.	H. F. Vogt, Sec'y Park Comr.
New Jersey	Newark	Sept. 8, 10 a.m.	Telford paving and grading 4 miles Pleasant Valley Way, from Bloomfield ave., Verona to Mountain ave., W. Orange.	W. Ougheltree, Dir. Bd. Freeholders.
Ohio	Mansfield	Sept. 8, noon	Cement sidewalks, 60,000 sq. ft.; grading 2,000 cu. yds.	W. E. Singleton, Town Clerk.
New Jersey	New Brunswick	Sept. 12, 2 p.m.	Bldg. 2,015 miles gravel road from Spotts road, south.	A. W. Bissett, Clk. Bd. Freeholders.
New York	Scarsdale	Sept. 12	Resurfacing 2.74 miles with bituminous macadam.	Frank Sibley, Town Clerk.
Ohio	Euclid	Sept. 12, noon	Paving and improving Lawnview ave.	N. J. Brewer, Village Clerk.
Arizona	Phoenix	Sept. 13	Bldg. Territorial highway between Bisbee and Douglas.	Robt. A. Craig, Sec'y Bd. Control.
Indiana	Vernon	Sept. 15, 11 a.m.	Bldg. 3 miles gravel road in Vernon township.	County Auditor.
Pennsylvania	Harrisburg	Sept. 16, 2 p.m.	Bldg. 3 roads, 5,900, 5,500 and 1,076 lin. ft.	J. W. Hunter, State Hwy. Comr.
California	Hermosa Beach	Sept. 23	Warrenite paving, on 5-in. bituminous concrete base, \$60,000.	E. McCoskey, City Clerk.
<b>SEWERAGE</b>				
Utah	Salt Lake	Aug. 26, 8 p.m.	Sewer extensions Nos. 268, 270, 273, 272, 246, 265.	H. G. McMillan, Chm. Bd. Pub. Wks.
Wisconsin	Janesville	Aug. 26, 2 p.m.	Improve three sewerage districts.	W. F. Carle, Chm. St. Assess. Com.
Ohio	Lakewood	Aug. 29, noon	Bldg. sewers in 2 streets.	B. M. Cook, Village Clerk.
Dist. of Col'bia	Washington	Aug. 29, 2 p.m.	Bldg. sewers.	J. H. Rudolph, Chm. Comrs.
Wisconsin	Waupaca	Aug. 29, 6 p.m.	Bldg. 1,825 ft. 12-in. pipe sewers, 13 manholes, etc.	Ce. Woodnorth, City Clerk.
New York	St. George, S. I.	Aug. 30, noon	Bldg. temporary combined sewer in John and Prince sts.	Geo. Cromwell, Boro. President.
Kentucky	Winchester	Aug. 30, 1 p.m.	Bldg. 8 1/2 mi. 6-15-in. sewer, manholes, flush tanks, etc., \$65,000.	J. A. Hughes, Mayor.
Ohio	Cleveland	Aug. 31	Laying sewer pipe on Depot road.	J. F. Goldenbogen, Clk. Co. Comr.
New Jersey	Hancock	Aug. 31, noon	Bldg. sewer outlet.	F. H. Smith, Construct. Q. M.



## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>SEWERAGE (Continued)</b>				
Wisconsin.....	Algona.....	Sept. 1.....	Bldg. vit. pipe sewer; cost, \$4,000.....	Wm. Wiseman, Jr., City Clerk.
Ontario.....	Peterboro.....	Sept. 1, 1 p.m.....	Furn. 8 to 30-in. tile sewer; lay 2,000 ft. sanitary sewer and 4,200 ft. storm drain; elec. operated air compressor and ejectors; sewage pump station.....	Board of Works.
Kentucky.....	Louisville.....	Sept. 2, noon.....	Bldg. Sec. F. Beargrass Interceptor, Conc. Sewer, cut, 21.2 ft.....	P. L. Atherton, Chm. Sewer Bd.
Iowa.....	Hawarden.....	Sept. 3, 8 p.m.....	Bldg. 18,000 ft. 8, 10 and 12-in. vit. pipe.....	T. J. Reeves, City Clerk.
New York.....	Rochester.....	Sept. 3, 10 a.m.....	Bldg. sewage disposal plant at Tuberculosis Hosp.....	T. J. Bridges, Chm. County Comrs.
Ohio.....	Newburgh Hgts.....	Sept. 3, noon.....	Bldg. sewers in number of streets.....	A. W. Shatts, Village Clerk.
Indiana.....	New Castle.....	Sept. 5.....	Constructing a sanitary sewer.....	L. M. Johnson, City Clerk.
Iowa.....	Emmetsburg.....	Sept. 6.....	Bldg. 2,987 ft. 8-in. vit. sewer pipe in Bwy., 14th, 16th, Union sts.....	F. E. Rutledge, City Clerk.
Wisconsin.....	Evansville.....	Sept. 6, noon.....	Engineer to supervise and install sewerage plant.....	F. W. Gillman, City Clerk.
South Dakota.....	Sioux Falls.....	Sept. 6, 9 a.m.....	Bldg. 66,000 ft. 8 to 36-in. sewer; \$10,000 check.....	Lewis Larson, City Auditor.
Ohio.....	Upper Sandusky.....	Sept. 6.....	Bldg. sanitary and surface water sewer in Warpole street.....	City Clerk.
Maryland.....	Baltimore.....	Sept. 7, 11 a.m.....	Bldg. 23,000 ft. 8-15-in. vit. pipe, 30 ft. 30-in brick and concrete sewer; 10,000 ft. 6-in. house connection, Dist. 14.....	G. N. Numsen, Pres. Bd. Awards.
North Dakota.....	Carrington.....	Sept. 9, 7:30 p.m.....	Bldg. septic tank, main outlet sewer, also sewers, Dist. No. 1.....	H. L. Winterer, City Auditor.
Ohio.....	Greenville.....	Sept. 10, 4 p.m.....	Bldg. 6 miles 8-in. sanitary sewer extensions, etc.....	C. P. Ballenger, City Engineer.
Indiana.....	New Castle.....	Sept. 15, 7:30 p.m.....	Bldg. sanitary sewer.....	L. M. Johnson, City Clerk.
California.....	Brawley.....	Sept. 19.....	Bldg. \$18,000 sewer system.....	W. H. Whelan, City Clerk.
Pennsylvania.....	West View.....	Oct. 1, noon.....	Bldg. main sewer and disposal plant, plans by Trimble & Miller, Fourth ave., Pittsburg.....	H. L. Donaldson, Boro. Sec'y.
<b>WATER SUPPLY</b>				
Massachusetts.....	Quincy.....	Aug. 26, 2:30 p.m.....	Bldg. receiving basin, pump, well, pipe lines and masonry conduit for electric wires for South Metropolitan system.....	H. H. Sprague, Chm. Met. Water & Sewerage Board.
Kentucky.....	Louisville.....	Aug. 26, 2 p.m.....	Erecting 48 fire hydrants at specified points.....	R. G. McGrath, Sec'y Bd. Pub. Wks.
Ohio.....	Toledo.....	Aug. 29, noon.....	Bldg. intake crib improvement; cost, \$7,500.....	G. W. Tonson, Ch. Engr., Bd. P. Ser.
Wyoming.....	Lovell.....	Aug. 29, 1 p.m.....	Bldg. 60,000-gal. wood or steel tank on 40-ft. steel tower.....	W. T. Lovell, Engr.-in-Charge.
Utah.....	Provo.....	Aug. 29, 3 p.m.....	Changing water mains; cost, \$90,000.....	L. C. Kelsey, Consulting Engineer.
Ohio.....	Millersburg.....	Aug. 29.....	Bldg. well No. 2; Wm. Reidenback, Engineer.....	Louis Wiley, Clk. Bd. Pub. Affairs.
Alabama.....	Opelika.....	Aug. 31, noon.....	Furnishing all material and bldg. complete water works and electric light system; J. B. McGarry Co., Empire Bldg., Atlanta Ga., Engineers.....	Mayor and Council.
Arkansas.....	Hamburg.....	Aug. 31, noon.....	Bldg. water works and electric light system for city.....	Bd. Improvement, Dist. No. 2.
Massachusetts.....	Boston.....	Sept. 1, noon.....	Furn. and erect 2 steam turbine driven cent. pumps at station.....	L. K. Rourke, Supt. of Streets.
Michigan.....	Manistee.....	Sept. 1, 2 p.m.....	Bldg. 12-in. c-i. pipe river crossing, ready for use.....	T. J. Elton, Sec'y Water Board.
North Carolina.....	Roxboro.....	Sept. 1.....	Water works improvements, \$2,500, inc. 1000 ft. pipe extension.....	N. Lunsford, Mayor.
Indiana.....	Connersville.....	Sept. 1, 2 p.m.....	Bldg. pumping station, and other bldgs., reservoir, removing old machinery, laying water pipe, etc., drill wells, furn. vert. motors, elec. cent. unit, turbine generator unit with surface condenser, etc., and tubular boilers.....	B. Marvin, Cons. Engr., Frankfort.
Manitoba.....	Dauphin.....	Sept. 1.....	Furn. c-i. pipe and specials; fire hydrants and valves, sewer and wood-stave pipe; bldg. dam and gate house, laying 9-10 miles gravity main, also sewer and water pipe; Chipman and Power Engineers, Winnipeg and Toronto.....	J. W. Johnston, Sec'y-Treas.
Nebraska.....	Cozad.....	Sept. 2, 6 p.m.....	Bldg. water works system; as whole or in parts.....	Hershey S. Welch, C.E., No. Platte.
North Dakota.....	Grand Forks.....	Sept. 5, 3 p.m.....	Reconstructing stone sand filter, constructing rapid sand filter.....	C. J. Evanson, City Auditor.
Pennsylvania.....	Conneaut Lake.....	Sept. 5, 8 p.m.....	Laying 9,800 ft. 4-6-in. water mains, 17 hydrants, 16 valves.....	T. F. Armour, Boro. Clerk.
Mississippi.....	Cleveland.....	Sept. 6, 3 p.m.....	Bldg. complete water works plant for town.....	X. A. Kramer, C.E., Magnolia.
Iowa.....	Pella.....	Sept. 6, 6 p.m.....	Combined water and light plant; 18,000 ft. 10-in. pipe, filter gallery, well, 2 bldgs., 2 a.c. generators, 2 motors, 2 engines, 2 pumps, 3 boilers, etc., Iowa Eng. Co., Clinton.....	A. C. Kuyper, City Clerk.
North Dakota.....	Carrington.....	Sept. 9, 7:30 p.m.....	Extension of water mains.....	City Clerk.
Iowa.....	Anamosa.....	Sept. 10.....	Drilling wells at county farm.....	Louis Gardner, Co. Aud.
Maine.....	Portland.....	Sept. 12, noon.....	Furn. and lay 14 miles of pipe from basin near Lake LeBago to Portland; 75,700 ft. 48-in. steel pipe; 21,600 tons c.i. pipe, 300 tons specials, Hazen and Whipple, New York City.....	L. B. Griffin, Chm. Trus. Water Dist.
Canada.....	Montreal.....	Sept. 14, noon.....	Construc. 3,200 ft. steel pipe 6 ft. diam. in river and other works for intake.....	L. N. Senecal, Sec'y Bd. of Comrs.
Michigan.....	Detroit.....	Sept. 20, noon.....	Bldg. and erecting 25,000,000 gal. pumping engine.....	B. F. Guiney, Sec'y Bd. Wt. Comr.
Indiana.....	Evansville.....	Sept. 29, 10 a.m.....	Furn. and erect 2 steam-driven pumps or pumping engines, 12,000,000-gal., lift 13 to 62 ft.; bids wanted on all types.....	H. L. Heilman, Sec'y Water Board.
<b>BRIDGES</b>				
Missouri.....	Kansas City.....	Aug. 26.....	Bldg. abuts. and super. 20x16 ft. bridge, maintain 4 years.....	R. T. Proctor, County Surveyor.
Ohio.....	Napoleon.....	Aug. 26.....	Bldg. bridge over Oberhaus creek on Woodlawn ave.....	G. E. Rafferty, Village Clerk.
Indiana.....	Shelbyville.....	Aug. 29, 10 a.m.....	Constructing 4 bridges.....	G. B. Huntington, County Auditor.
Kansas.....	Alma.....	Aug. 29, noon.....	Bldg. bridge over Kaw river at Sweeney Crossing, Kaw twp.....	C. C. Stotler, County Clerk.
New York.....	St. George, S. I.....	Aug. 30, noon.....	Bridge work, etc., on Castleton ave. extension.....	Geo. Cromwell, Boro. President.
New Jersey.....	Avalon.....	Aug. 30, noon.....	Bldg. 1,558 lin. ft. of bridging, inc. one steel draw span.....	Chas. R. Hall, Real Estate Trust Bld. Philadelphia, Pa.
Montreal.....	Quebec.....	Sept. 1 noon.....	Bldg. Quebec bridge superstructure; \$500,000 check.....	L. K. Jones, Sec'y Dept. Rys. & Can.
Ohio.....	Akron.....	Sept. 2, 11 a.m.....	Repairing Portage street bridge at Cuyahoga Falls.....	C. L. Wirth, County Clerk.
Ohio.....	Cincinnati.....	Sept. 2, noon.....	Bldg. bridges and approaches, Briery creek road, Green twp.....	Fred Dreihls, Clk. Co. Comrs.
South Carolina.....	Gaffney.....	Sept. 5.....	Rebldg. steel approaches on concrete base, repair bridge, etc.....	E. Felix Lipscomb, County Superv.
Kansas.....	Leavenworth.....	Sept. 5, noon.....	Bldg. two bridges and replacing Bridge No. 20.....	J. W. Niehaus, County Clerk.
North Dakota.....	Williston.....	Sept. 7, 10 a.m.....	Bldg. two 30, two 25 and three 20-ft. bridges, 16-ft. rdwy, etc.....	Board of County Comrs.
Ohio.....	Ashland.....	Sept. 7.....	Bldg. two 60 ft. c. to c. steel truss bridges with concrete floor, complete; also 2 new substructures of stone and concrete footers, 150 perch stone.....	T. Brindle, County Surveyor.
Missouri.....	Carthage.....	Sept. 7, 1:30 p.m.....	Constructing 4 bridges for county.....	Wm. Kohlman, County, Hwy. Engr.
Pennsylvania.....	Wilkes-Barre.....	Sept. 8, noon.....	Bldg. rein. concrete viaduct approaches, 7 river piers and 6 steel river spans, electric wiring, etc., at Plymouth.....	Jas. M. Norris, County Comptroller.
Maine.....	Augusta.....	Sept. 9, noon.....	Bldg. 762-ft. bridge over St. Johns river at Van Buren.....	State Comr. of Highways.
North Dakota.....	Fargo.....	Sept. 9, noon.....	Bldg. 46 ft., 30 ft., and four 20-ft. bridges, steel culvert, and repair 60-ft. bridge.....	Arthur C. Lewis, County Auditor.
Pennsylvania.....	Harrisburg.....	Sept. 16, 2 p.m.....	Bldg. 2 cement masonry and rein. concrete bridges.....	J. W. Hunter, State Hwy. Comr.
<b>LIGHTING AND POWER</b>				
Ontario.....	Port Credit.....	Aug. 29.....	Bldg. transformer station; sep. bids for struc. steel work.....	Adam Beck, Chm. Hy. Elec. P. Com.
Ohio.....	Sandusky.....	Aug. 29, noon.....	Lighting streets, alleys, parks, etc., for 10 years.....	John Bing, Dir. Pub. Service.
Ohio.....	Hamilton.....	Aug. 30, noon.....	Furn. 8,000 ft. O.D. plain end wrght. iron pipe 3-8 in. thick for nat. gas, tested 750 lbs. sq. in., weight 15.41 per ft., also 10 tons heavy c.i. fittings for 4-in, 6-in, 8-in wrght. screw pipe, elbows, T's, crosses, tested at 800 lbs.....	C. M. Robertson, Clk. D. P. Serv.
Alabama.....	Opelika.....	Aug. 31, noon.....	Furn. material and bldg. water works and elec. light system.....	Mayor and Council.
Arkansas.....	Hamburg.....	Aug. 31, noon.....	Bldg. electric light plant and water works for city.....	W. E. Ayres, Randolph Bldg., Memphis, Tenn.
Alberta.....	Medicine Hat.....	Sept. 1.....	Furn. 2 dir. con. gas engine-driven 125-kw., a.c. units each to deliver 200 B.H.P. on natural gas of 1100 B. T. U. per cu. ft. Furn. and installing 46,000 ft., 13,000-volt, 3-core cable.....	D. Milne, Mayor.
Manitoba.....	Winnipeg.....	Sept. 1, noon.....	Municipal light plant; will grant franchise.....	M. Peterson, Sec'y Bd. Control.
Illinois.....	Princeville.....	Sept. 3.....	Bldg. light and water plant; transmission line, city lighting, lines, lamps, etc., 3 boilers, 2 pumps, 2 motors, 2 a.c. generators, engines, pipe, etc., Iowa Eng. Co., Clinton.....	Village Clerk.
Iowa.....	Pella.....	Sept. 6.....	Furnishing gas and electric fixtures for new Court House.....	A. C. Kuyper, City Clerk.
Indiana.....	Peru.....	Sept. 7, 2 p.m.....	Supplying city with electric light for street and commercial purposes; state rates and the cap. per lamp for each.....	Bd. Comrs. of Miami County.
Prince Edw. Id.....	Charlottetown.....	Sept. 10.....		W. W. Clarke, City Clerk.

## BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
<b>MISCELLANEOUS</b>				
Massachusetts	Boston	Aug. 30, noon	Bldg. Sec. 2, Beacon Hill tunnel, inc. 3 platform stations	Boston Transit Commission.
Dist. of Col'bia	Washington	Sept. 1, 2 p.m.	Furn. straight double 85-gal. tank chemical engine	C. H. Rudolph, Chm. Comrs.
Minnesota	St. Paul	Sept. 1, noon	Setting and removing boilers and mach., etc., in City & Co. Hosp.	N. P. Langford, Chm. Bd. Control.
Pennsylvania	Lebanon	Sept. 1, 11 a.m.	Repair fire alarm system, install 2 and furnish 1 alarm boxes	Frank W. McAdam, Chm. Fire Com.
Massachusetts	Boston	Sept. 2, noon	Bldg. stone wharf, Pier No. 6, South Boston, 1,200 ft. long, 300 ft. wide, inc. 414,600 cu. yds. dredging, 274,600 cu. yds. fill; furn. 94,000 cu. yds. gravel, 40,200 cu. yds. rip-rap and stone ballast, 1,295 spruce piles, 730 cu. yds. concrete, 45,750 cu. yds. stone masonry below and 14,100 above low water, 95 lin. ft. bulkhead, 2,700 lin. ft. fenders on face of wall	State Bd. Harbor Comrs.
Dist. of Col'bia	Washington	Sept. 3, noon	Furn. and placing rip-rap or cobblestone on seawall Anacosta riv.	W. C. Langfill, Col. U. S. Engrs.
New York	Albany	Sept. 6, 3 p.m.	Bldg. new fire-truck house at Marshall st. and Del. ave.	M. T. Reynolds, Arch., 100 State st.
Oklahoma	Tulsa	Sept. 6	Sketch plans, etc., for \$200,000 County Court House and Jail	County Clerk, Tulsa County.
Wisconsin	Racine	Sept. 6, 5 p.m.	Bldg. 25-ton incinerator, housed in fireproof bldg.	Leslie M. Fowler, City Clerk.
Illinois	Cairo	Sept. 6, 7:30 p.m.	Repairing fire stations Nos. 1 and 2	E. Nordman, City Comp.
Maryland	Baltimore	Sept. 7, 11 a.m.	Constructing coal and ash handling plant in sewage pumping station	G. N. Numsen, Pres. Bd. of Awards.
West Virginia	Wheeling	Sept. 15, 11 a.m.	Bldg. 3 concrete ice piers in Kanawha river	F. W. Altstaetter, Capt. U. S. Engrs.
West Virginia	Wheeling	Sept. 16, 11 a.m.	Bldg. lock and dam No. 12, Ohio river, also lock and guide walls bear trap weirs and Chanoine weir, Dam 19	F. W. Altstaetter, Capt. U. S. Engrs.
Louisiana	New Orleans	Sept. 19, 11 a.m.	Bldg. rein. concrete sea wall on pile foundation, 2,700 ft. long and 14 ft. high, Lake Pontchartrain, also for filling in with earth dredged from lake, 400,000 cu. yds. behind wall	C. R. Kennedy, City Comptroller.
Indiana	Huntington	Sept. 19, 10 a.m.	Improving county jail	J. W. Weaver, County Auditor.
Washington	Aberdeen	Sept. 28, 5 p.m.	Clearing 250 acres, filling 1,500,000 cu. yds., construct. 4,000 ft. drain for improving tide lands	P. F. Clark, City Clerk

## STREET IMPROVEMENTS

**Luverne, Ala.**—Crenshaw County will vote in November on bonds for road construction.

**Mobile, Ala.**—City and Baldwin County are considering construction of roadway and bridge across Mobile Bay.

**Montgomery, Ala.**—City will pave South McDonough st. with brick, asphalt, bitulithic, Blome granitoid block, mineral rubber, wood block or other material; also sidewalks on Sayre st. with hexagon-tile pavement, and sidewalks on Mildred st. with hexagon-tile or Schillinger pavement. —Ira H. Virgin, Acting Mayor.

**Stuttgart, Ark.**—City is considering paving main business streets with brick and residence streets with macadam.

**Pine Bluff, Ark.**—Jefferson County is considering formation of Road Improvement District No. 3 to construct gravel road to Sulphur Springs; road will be 18 ft. wide and about 12 miles long.—James Gould, County Judge.

**Oakland, Cal.**—Board of Park Commissioners, acting upon the advice of City Attorney John W. Stetson, rejected all bids for the asphaltting of roadways in Lakeside Park; new bids will be asked.

**Salida, Col.**—Chaffee County Commissioners have appropriated \$2,000 for improvement of roads.

**Washington, D. C.**—American Consul in a European country writes that about \$6,000,000 has been appropriated for construction of national roadways. Address No. 5363, Bureau of Manufactures.

**Key West, Fla.**—Contracts will be let about Oct. 15 for proposed paving work. Hazlehurst & Anderson, Candler Bldg., Atlanta, Ga., engineers.

**Palatka, Fla.**—Putnam County has engaged R. F. Ensey as engineer in charge of construction of 40 miles of hard-surfaced roads; \$100,000 available.

**Atlanta, Ga.**—Work will soon begin on paving of Peachtree st.

**Joliet, Ill.**—Extension of Main ave. crossing of the E. J. & E. tracks in Rockdale was approved by the Highway Commissioners.

**Crawfordsville, Ind.**—The Board of Public Works will soon let contract for paving with brick or asphalt, and curbing, Sloan st. and Wabash ave.

**Richmond, Ind.**—Plans are being prepared for widening, paving and curbing W. 7th, W. 8th and W. 9th sts.—H. H. Hammond, President Board of Public Works.

**Hutchinson, Kan.**—City has sold \$82,742 municipal paving bonds to Spitzler Co., Cleveland, O.

**Iola, Kan.**—Seventy-two blocks of sidewalk that have been condemned by Street Commissioner F. O. Butler will be relaid as soon as possible.

**Denton, Md.**—Caroline County has sold \$15,000 bonds for improvement of roads and bridges.

**Dighton, Mass.**—Board of Selectmen is considering calling special meeting to consider question of appropriation for a macadam road from Berkley bridge to the First Congregational Church; cost \$5,000.

**Lynn, Mass.**—Board of Aldermen has ordered construction of granolithic sidewalks on four streets.

**Duluth, Minn.**—Surveys are being made for extension of Ramsey st.

**Rochester, Minn.**—City will pave portions of Broadway, Zumbro, 4th and 5th sts. with creosoted block.

**Brandon, Miss.**—District No. 2 of Rankin County will vote Aug. 25 on \$30,000 bonds for road improvements.

**Columbus, Miss.**—City is considering number of street improvements.—Charles Lyon Wood, Engineer.

**Hazlehurst, Miss.**—Copiah County Commissioners are considering \$100,000 bond issue for good road purposes.

**Starkville, Miss.**—Oktibbeha County Supervisors have passed ordinance for issuance of \$20,000 bonds for road construction in District No. 1.

**Kansas City, Mo.**—Board of Public Works has adopted resolutions for asphalt pavement on Oak st.; artificial stone curbing on Archibald st.; stone sidewalks on 11 streets, and repair of asphalt pavement on four streets.

**Dundee, Neb.**—Trustees of village have advertised for bids for paving Dodge st. road with brick, from 48th to 40th st.; contract will soon be awarded.

**Caldwell, N. J.**—Road Committee is directed to advertise bids for grading and laying of stone walks in Cleveland st.; also for Central ave. sidewalk improvement at September meeting.

**Jersey City, N. J.**—The Board of Finance has passed a resolution for paving of Bergen ave. with wood block; cost, \$22,730.

**Kingsland, N. J.**—Budget carries \$2,500 for macadamizing Kingsland ave. and \$5,000 for improving Pennsylvania ave.

**Sea Isle City, N. J.**—Citizens have voted \$80,000 bonds for improvements, including improvement of streets.

**Auburn, N. Y.**—Paving of Lewis st. is being considered.

**Niagara Falls, N. Y.**—Council has decided to order paving or macadamizing of 6th st.—Thos. H. Hogan, City Clerk.

**Utica, N. Y.**—City will lay a large quantity of artificial stone sidewalks this season.

**Utica, N. Y.**—City Engineer Cogley has prepared plans for pavements on Thomas and Rudolph sts.

**Shallotte, N. C.**—Shallotte Township of Brunswick County will vote Nov. 8 on \$10,000 bonds for road improvements.

**Akron, O.**—Council has passed ordinance to issue \$19,750 notes for improvement of Portage path.

**Alliance, O.**—Bids will be received by C. O. Silver, City Auditor, Aug. 30, for \$32,800 street improvement bonds.

**Covington, O.**—Council has decided to reconstruct Madison ave.; wood block will be used.

**Hamilton, O.**—City Engineer F. E. Weaver has presented to Council estimate of cost of paving South B st. and 4th st.; estimates as follows: South B st., limestone curb and gutter, asphalt, 1½-in. top, \$22,588; vit. brick, \$21,125; sheet asphalt, 2-in. top, \$23,563; creosoted block, \$27,643; cement curb and gutter, asphalt, 1½-in. top, \$21,549; vit. brick, \$20,166; sheet asphalt, 2 in. top, \$22,471; creosoted block, \$26,159; Fourth st., limestone curb and gutter, sheet asphalt, 1½-in. top, \$14,318; vit. brick, \$13,538; sheet asphalt, 2-in. top, \$14,838; creosoted block, \$16,918; cement curb and gutter, sheet asphalt, 1½-in. top, \$13,748; vit. brick, \$13,016; sheet asphalt, 2-in. top, \$14,236; creosoted block, \$16,188.

**Hamilton, O.**—Paving of portions of South B and Main sts. is being considered; cost about \$44,000.

**Hamilton, O.**—Engineer Dillon, Butler County, has completed estimate on the

Venice road improvement; bids will be asked for improvement.

**Marion, O.**—County Surveyor Ed S. Ault, city, has completed his estimate of cost of improving the Prospect pike with tar macadam; cost is \$5,170; Commissioners have decided to improve road out of Caledonia.

**Newark, O.**—Ordinance has been introduced in the Council to improve Cedar st. by paving and curbing.

**Steubenville, O.**—Bids will be received Sept. 1 for \$12,000 W. Market st. paving bonds.—H. W. Patterson, City Auditor.

**Tiffin, O.**—City Engineer has been instructed to prepare plans and estimate of the cost of the proposed Charlotte st. improvement.

**Wallowa, Ore.**—Council has ordered grading and coating of the streets of city with shell-rock to conform with the cement sidewalks and crossings to be installed at once preparatory to paving.

**Chester, Pa.**—Property owners have petitioned for resurfacing Edgmont ave., 8,000 sq. yds.

**Nanticoke, Pa.**—Borough Surveyor Samuels has been authorized to prepare plans and specifications for paving Greene street.

**Nanticoke, Pa.**—Ordinance for paving Prospect st. adopted.

**Steelton, Pa.**—All bids rejected for laying curbing to replace defective parts on Front st.; work will be done by Highway Committee.

**Washington, Pa.**—Grand Jury has approved four petitions for proposed improvement of certain county roads.

**Aiken, S. C.**—Paving of Main st. is being considered.

**Chattanooga, Tenn.**—Council is considering ordinance creating paving districts on Fort Wood and Pine sts.

**Abilene, Tex.**—Precinct No. 1 of Taylor County will vote Sept. 17 on \$150,000 bonds for road construction.

**Colorado City, Tex.**—The election on \$30,000 bonds for road improvements carried; the area of improvement is nine miles square.

**Lockhart, Tex.**—Precinct No. 1 of Caldwell County is considering election on \$50,000 road bonds.

**Martindale, Tex.**—Martindale Precinct of Caldwell County has voted \$40,000 bond issue for road construction.

**Stephenville, Tex.**—The Commissioners' Court and City Council have agreed to have the Square paved with crushed rock.

**Temple, Tex.**—City will pave North Main st. with Hassam compressed concrete.

**North Emporia, Va.**—Town Council will soon invite bids for paving Main st. and Southampton ave. with granolithic.

**Everett, Wash.**—Ordinance for improving East Grand, Cleveland, Harrison and adjacent streets is pending.

**North Yakima, Wash.**—Cost of paving five blocks on 11th ave. with asphalt has been estimated at \$30,000.

**Spokane, Wash.**—Council has approved plans for four new street paving improvements; Lincoln st., between 4th and 5th, to be of brick, rest concrete, \$15,800; Wall st. with granitoid concrete, brick on the grade between 3d and 4th, \$15,500; 3d ave., Sherman to Hillard, and Bernard st., Pacific to 8th.

**Tacoma, Wash.**—Pierce County Commissioners have asked bids for building road around Dash Point; cost \$50,000.

**Tacoma, Wash.**—Park Board and other



city officials are reviving the Cliff ave. boulevard project under revised plans.

**Menasha, Wis.**—Council has decided to pave a portion of Chute st.

**Montreal, Que., Can.**—City will construct sidewalks this summer at a cost of \$500,000; about 25,000 sq. yds. of flagstones, 80,000 yds. of asphalt, and 50,000 sq. yds. of cement will be laid.

**Toronto, Ont., Can.**—Joint Commission has recommended the improvement of about 112 miles of road; cost \$300,000.

**Monterey, Mex.**—Bids for paving a large number of streets will be received by the last of September; Alcade Putman will supply information.

### CONTRACTS AWARDED

**Napa, Cal.**—To Moyer Bros. for road work in Brown's Valley, \$5,290.

**Oakland, Cal.**—Grading of Kelley st. from Station 10 to Station 22, Castro Valley road district, to P. H. Hoare, \$1,019.

**Oakland, Cal.**—Sidewalk construction, Park Commission, to J. R. Sorenson, 17,460 sq. ft., 8½c.; other bidders, F. E. Nelson, 11½c.; A. Lazavsky, 10½c.; Burnham Co., 11c.; Oakland Paving Co., 12c.; Harry B. Williams, 9½c.—H. F. Vogt, Secretary.

**Tulare, Cal.**—To Worsdick Street Paving Co., Fresno, for recapping the present pavement and laying new in front of municipal holdings and constructing cement walks, cement curbing and concrete gutters, a total of \$7,875.

**Wilmington, Del.**—Building State road, distance 9,550 ft., to Horgan Contracting Co., \$19,000; John T. Dyer's trap rock is to be used in the construction of the road. Telegraph road, to same company, \$14,598. John Dyer's trap rock is to be used. Lorde ave., to same company, \$5,024.74. Brandywine granite to be used in building the road. Lancaster turnpike from Baker's bridge over Red Clay Creek to Hockessin, to C. Corcoran Construction Co., \$37,990; local stone from quarries along and near the road is to be used in construction.

**Pensacola, Fla.**—To W. W. Hatch & Sons Co., Goshen, Ind., laying 17 miles of concrete sidewalks, 9c. per sq. ft.

**Chicago, Ill.**—Furnishing and delivering at the various yards about 5,000 sq. yd. cedar block, to Jas. A. Sackley Co., Chamber of Commerce Bldg., 37c. per sq. yd.

**Freeport, Ill.**—Paving Exchange st. and Liberty st. to Fenley & Lewis, Hoopeston, about \$4,108.

**Kankakee, Ill.**—To Hays Sons & Co., for paving E. Court st. with Sarco, about \$20,000.

**Danville, Ind.**—To Evan Bray, Noblesville, for construction of roads in Union and Washington townships.

**Salem, Ind.**—To Bert Chartaen, Campbellsburg, for construction of the Bee Line gravel road in Washington Township, \$11,754.

**Clinton, Ia.**—Laying 8,300 sq. yd. creosoted wood block paving, to Thos. Carey & Son, Clinton, \$22,146.

**Villisca, Ia.**—Paving on 3d ave., 3d, 5th and N. Depot sts., requiring about 20,542 yd. pavement, 7,818 ft. curb, etc., from plans by Thos. S. DeLay, engineer, Creston, to Hamilton & Schwartz, Shenandoah, \$1.97 per sq. yd. for paving and 37c. per lin. ft. for curb.

**Lawrence, Kan.**—Paving Adams st., to Hoskins & Ramsey, \$1.34 per yd. for concrete foundation, grout filler and one course of brick.

**Bellevue, Ky.**—Paving Fairfield ave. to Thos. P. Strack, Cincinnati, \$33,787.

**Lexington, Ky.**—To J. H. Hostetter, to crush rock with which to keep in repair Winchester, DeLong and Richmond pikes; from 100 to 200 rods of rock will be crushed at each of three quarries located on these pikes; price to be paid will be in the neighborhood of \$9 per rod.

**Baltimore, Md.**—Paving Liberty road between Walbrook Junction and the city limits, to Monroe Paving Co., of Philadelphia; sheet asphalt will be used. Improving Belair road between the city limits and Overlea, with pitched macadam, to E. P. Lindsay.

**Semidji, Minn.**—To John Goodman, city, to pave two blocks on 3d st.

**Kansas City, Mo.**—To Colyer Bros., 340 Midland Bldg., for paving 6 miles with macadam on the Levasy-Oak Grove road, \$37,182.

**Levasy, Mo.**—Colyer Bros., six miles macadam, \$37,182, \$1.77 per sq. yd.

**Camden, N. J.**—Amiesite surface on Chapel ave., to E. C. Humphries, Hackensack, at \$1.24 per sq. yd., including a 5-in. macadam base.

**Elmer, N. J.**—Grading and placing gravel surface on Elmer Borough road, 1.78 miles, to F. H. Loyd, Salem, \$7,418.

**Freehold, N. J.**—Paving one mile of road, second section of Smithburg-Clarksburg gravel road, to Jos. L. Butcher & Son, Farmingdale, \$3,298.

**Irvington, N. J.**—Furnishing and delivering 1,000 tons of crushed mountain stone, to Henry L. Meeker, \$1.49 and fraction per ton.

**Irvington, N. J.**—Paving Harrison place with telford pavement and curbing and paving of gutters with vit. brick, to John Dorer, Stuyvesant ave., \$10,291.48; same contractor also received Ellery ave. flagging job, 16c. per lin. ft.

**Binghamton, N. Y.**—Paving Court st., about 1,130 sq. yds., with Corning brick, including excavation and new 6-in. gravel concrete base, to A. D. Osborn, 159 Beethoven st., at \$1.95 per sq. yd.

**Schenectady, N. Y.**—Paving Francis ave., from Crane st. to the Schenectady railway viaduct, to Union Paving Co.; excavation per cu. yd., 50c.; asphalt pavement per sq. yd., \$2.20; brick pavement per sq. yd., \$2.42; curbing per lin. ft., 85c.; catch basins, \$90; manholes, \$48; 10-in. pipe with excavation and laying, per ft., 60c.; water taps, \$7.50; water connections, 50c.; sewer connections, 50c.; to Schenectady Contracting Co., \$1.70 for repairing boulevard pavement.

**Utica, N. Y.**—To Barber Asphalt Paving Co. for paving Elm st. from the West Shore Railroad to Pleasant st. with sheet asphalt and artificial stone curb, \$7,447.20; for Roberts st. with sheet asphalt and natural stone curb, \$1,778; Roberts st., from Lincoln ave. to dividing line of Third and Ninth wards, with sheet asphalt and natural stone curb, \$1,231.80.

**Watervliet, N. Y.**—Paving Broadway, from 15th to 19th sts., to Michael W. Nolan, city, \$1.39 per yd. for paving, 89c. per ft. for curbing, and \$60 each for catch basins, paving material to be granite block laid on concrete foundation and grouted with cement; other bidders were Hassam Paving Co., Worcester, Mass., and John H. Gleason & Co., Troy.

**Southport, N. C.**—To A. J. Robbins, city, for road construction in Smithville Township.

**Dayton, O.**—Macadamizing 2.64 miles of Xenia pike, to K. E. Kunkle, \$14,758. To Seabold & Arnold, for macadamizing and grading about one mile of the Dayton-Covington pike, 37c. for excavation, \$1.47 for crushed boulders and \$1.63 for limestone screenings.

**Wellsburg, O.**—To J. C. McGuire Co., New Brighton, Pa., for paving Pleasant ave.

**Zanesville, O.**—A. Emery & Son, Zanesville, for paving Cooper Mill road, \$12,150.

**Nanticoke, Pa.**—Herrick Construction Co., Stroudsburg, macadamizing Main st., \$4,365; other bids. Martin Kruppa, \$9,568; B. G. Coon Construction Co., \$5,550.

**Pittsburg, Pa.**—Macadamizing Crab Tree road to McLaughlin Contracting Co., 223 4th ave., for \$17,734.

**Chattanooga, Tenn.**—To Noll Construction Co. and West Construction Co., city, for paving Bossville blvd., total cost \$90,000.

**Bryan, Tex.**—To W. N. Fox, Palestine, to lay 4,000 ft. of concrete sidewalk.

**Denison, Tex.**—To Dennis McNerney, Sherman, for work in Denison road improvement district costing \$250,000.

**Houston, Tex.**—To Texas Grading Co., Houston, for improving 2 miles of lower end of West Montgomery road, \$12,000.

**Houston, Tex.**—To Talbot & Reddick, city, 13.4c. per sq. yd. to lay cement sidewalks around and through court house square.

**Kingsville, Tex.**—To Sherman Concrete Co., for construction of about 3,000 ft. of 6-ft. cement walk.

**San Antonio, Tex.**—Furnishing 15,000 gals. crude petroleum for use in sprinkling the roads around Fort Sam Houston, to Gulf Pipe Line and Refining Co., \$415.

**Sherman, Tex.**—To Dennis McNerney, for work in Denison road improvement district, \$250,000.

**Mt. Pleasant, Utah.**—Furnishing street department with 20,000 ft. of native white pine lumber, to G. F. Bohm, \$25 per M.

**Bellingham, Wash.**—To C. A. Roberts, for paving with brick portion of Railroad ave., \$35,490.

**Olympia, Wash.**—To Mills Bros. Contracting Co., for improving 6th st. by grading, graveling and sidewalking, \$26,384.

**Seattle, Wash.**—To Marks, Russell & Gallagher, city, for reggrading, etc., 5th ave. and 5th ave. S., at a total of \$156,144; for 190,000 cu. yds. earth work, 50c.; 21 M. ft. curb and gutter, \$22; 63 M. ft. wood walks and stairways, \$21; 2,500 lbs. bulkhead iron, 6c.; 2,456 lin. ft. 8 to 21-in. pipe sewer, \$1.60 to \$4; 36 brick manholes, \$85 and \$65; 2,616 lin. ft., 24-in. c.-i. pipe, to be adjusted, etc., \$2.25; 25,000 lbs. special castings, 7c.; 173,000 lbs. structural steel, 5c.; 1,339 lbs. reinforced bars, 6c.; 4,617 lbs. c.-i. 8c.; etc. Totals of other bids. Grant, Smith & Co. & Stillwell, Seattle, \$162,247; P. J. McHugh, Seattle, Wash., \$151,552, and International Contract Co., 501 Central Bldg., Seattle, \$167,830.

**Huntington, W. Va.**—Paving Maple ave., to Henry Wright, \$1.40 per sq. yd.; 26th st., to same, \$1.40 per sq. yd.; alley between 4th and 5th aves., to Harrison & Dean, \$1.42 per sq. yd.

**Wheeling, W. Va.**—Stone crusher, 15 tons, to Williams Contractors' Supply Co., Columbus.

**Collingwood, Ont., Can.**—To J. Conn, Windsor, for tar-litac paving on concrete base, \$6,380.

### BIDS RECEIVED

**Washington, D. C.**—Improving suburban streets and avenues in District of Columbia, only bidder, E. G. Gummel, 300 Rhode Island ave., N. W., as follows: Grading, per cu. yd., 39c.; setting 6 x 20 in. granite bluestone curb, per lin. ft., 27c.; setting 8 x 8 in. granite curb, per lin. ft., 37c.; paving or repaving cobble or granite blk. gutters, per sq. yd., 37c.; paving vitr. blk. gutters on gravel base, per sq. yd., 59c.

**Wilmington, Del.**—Construction of five stretches of road. Telegraph road, from Newark to Maryland line, 1.6 miles, Juniata Paving Co. of Philadelphia, trap rock, \$14,202.25; limestone, \$16,067.67; Horrigan Contracting Co., Wilmington granite, \$13,957.67; trap rock, \$13,800; dyer stone, \$14,598; limestone, \$14,201.89; B. F. Wick-ersham of Kennett Square, granite, \$16,600; J. E. Francis, Berks County, Pa., granite, \$18,236.76; limestone, \$18,847.31; John A. Clark, Wilmington, lockley stone, \$13,860; granite, \$14,230; granite, \$14,410; trap rock, \$14,960; limestone, \$15,330; George M. Freck, Philadelphia, trap rock, \$15,248.20; limestone, \$15,248.30. State road between Hare's Corner and Tybott's Corner, 3.69 miles, Juniata Paving Co., trap rock, \$36,193.03; limestone, \$39,032.08; Stewart & Donohoe, trap rock, \$42,109; granite, \$41,270; limestone, \$40,234; S. E. Francis, trap rock, \$47,750.50; limestone, \$44,553; Horrigan Contracting Co., granite, \$35,761.62; trap rock, \$34,080.67; dyer trap, \$27,600; limestone, \$32,976.60; B. F. Wick-ersham, trap rock, \$45,915; John A. Clark, trap rock, \$36,600; granite, \$37,800; Schuy-kill, \$38,400; Birdsboro, \$39,600; limestone, \$37,700. Lancaster turnpike, 4 miles, Corcoran Construction Co., West Chester, local stone, \$37,990; Joseph F. Bradley, Wilmington, \$38,615.71; Nelson-Meredith Co., Atlantic City, \$53,942.55; John A. Clark, \$54,950; Horrigan Contracting Co., \$54,936.44. Road from Delaware City to St. Georges, 2.55 miles, Juniata Paving Co., trap rock, \$15,640.02; limestone, \$17,685.69; J. E. Francis, granite, \$21,314; limestone, \$22,242.90; Stewart & Donohoe, Birdsboro trap, \$20,138; granite, \$19,422; limestone, \$20,138; John A. Clark, lockley stone, \$16,800; granite, \$17,400; Schuykill, \$17,700; trap, \$18,300; limestone, \$18,517; Horrigan Con-

Lynchburg, Va.—Bids received for Taylor, Wise and 14th St. improvement:

ITEMS	Quantities	Burnett Bros.	S. B. Bennington	J. R. Ford Co.	I. J. Smith & Co.	Lang & Miller
Excavation.....	3,500 cu. yds.	\$0.44	\$0.42	\$0.38	\$0.40	\$0.40
Concrete foundation.....	1,100 sq. "	1.50	1.60	1.50	1.60	2.00
Brick paving.....	1,100 " "	2.30	2.31	2.25	2.14	2.50
Tar macadam.....	4,500 " "	1.35	1.37	1.34	1.24	1.32
Concrete curb.....	3,600 lin. ft.	.45	.41	.40	.40	.40
Concrete gutter.....	3,600 " "	.20	.22	.20	.25	.30
Granolithic walks.....	675 sq. yds.	1.20	1.24	1.18	1.30	1.20
Stone strip crossing.....	575 lin. ft.	.85	.75	.80	.60	.70
Corner bar.....	600 " "	.30	.28	.25	.33	.25
Sewer inlets.....	1	14.00	16.00	14.00	20.00	15.00
Trapped sewer inlets.....	11	32.00	28.00	29.00	30.00	30.00
Broken stone roadway.....	700 sq. yds.	.50	.52	.60	.80	.60
Remove stepping stones.....	135	.15	.25	.15	.20	.04
Strip walk.....	540 lin. ft.	.05	.08	.05	.10	.04
Stepping rocks.....	340	.05	.02	.03	.20	.20
Old curb to be reset.....	200 lin. ft.	.16	.08	.10	.20	.05
Brick walks, removed.....	35 sq. yds.	.10	.60	.45	.40	.40
Rubble, relaid.....	240 " "	.65	.30	.30	.20	.40
Broken stone roadway.....	1,300 " "	.45	4.00	3.50	4.50	4.00
Dry rubble wall (pointed).....	150 cu. "	3.75	2.50	2.00	2.50	2.00
Old material.....	50 " "	2.35				
		\$17,850.50	\$17,717.18	\$17,013.45	\$17,116.50	\$18,335.85

tracting Co., granite, \$15,920.34; trap, \$15,558.40; dyers, \$16,694; limestone, \$16,850.19; B. F. Wickersham, granite, \$19,900; limestone, \$23,400; Joseph Anderson, granite, \$16,600.22. Lore ave., Brandywine hundred, .393 mile, Horrigan Contracting Co., granite, \$5,024.74; B. F. Wickersham, granite, \$6,500.

**Coeur d'Alene, Ida.**—The Hassman Paving Co. is lowest bidder for paving portions of Coeur d'Alene and 3d sts., \$13,000.

**Frankfort, Ind.**—Construction of 15 gravel roads throughout county, lowest bidders were: Johnson road, W. E. Bolt, \$3,145; Grice road, Frankfort Construction Co., \$3,770; Smith road, Frankfort Construction Co., \$5,280; Jacoby road, Frankfort Construction Co., \$899; Gochenour road, G. M. Good, \$2,113; Troxel road, C. C. Huffine, \$1,255; King road, Davis & Booher, \$3,456; Miller road, L. W. Seaman, \$1,994; McClamroch road, Thos. Sparks, \$7,664; Bottersall road, Davis & Booher, \$4,687; Maish road, L. W. Seaman, \$1,917; Dixon road, L. W. Seaman, \$4,048; Wright road, E. Mittenburg, \$1,944; Barnett road, Frankfort Construction Co., \$1,444; Pierce road, O. C. Davis, \$3,246.

**Burlington, Ia.**—Paving with brick portion of S. Main st.: Young & Buescher, \$2.06 per sq. yd.; Fred W. Guenther, \$1.85; Bernard Bros., \$1.80, and Geo. Peterson, \$1.50.

**Holland, Mich.**—C. Marsman, Grand Rapids, lowest bidder for paving a portion of W. 8th st. with Metropolitan block, \$1.83 per sq. yd.

**Jackson, Mich.**—H. D. Conway, lowest bidder for paving with Nelsonville block as follows: Liberty st., \$11,174; Water st., \$13,914; Milwaukee st., \$6,108.

**Muskegon, Mich.**—For paving McKinney ave.: A. Green, Grand Rapids, \$8,740; Mar-ble Cement & Coal Co., \$8,269; John Hughes, \$7,989, and Wiseloge & Co., \$9,623.

**Brooklyn, N. Y.**—Regulating, grading and paving with asphalt on concrete foundation the west traffic road of Ocean Parkway from 18th ave. to Kings Highway, lowest bidder, Brooklyn Alcatraz Asphalt Co., 407 Hamilton ave., as follows: 31,200 sq. yd. asphalt pavement, including binder course, \$1.49; 10,213 lin. ft. new curb, furnished and set in concrete, .80c.; 10,050 lin. ft. old curb, redressed, rejointed and reset in concrete, .55c.; 11 noiseless covers and heads complete for sewer manholes, \$14; total, \$61,259. Totals of other bids: The Barber Asphalt Paving Co., 30 Church st., N. Y. City, \$70,409; Cranford Co., 52 9th st., Brooklyn, \$62,090; Eastern Asphalt Paving Co., 115 Broadway, N. Y. City, \$70,307; and Uvalde Asphalt Co., 1 Broadway, N. Y. City, \$62,797. Parkside ave., from Flat-bush ave. to Park Circle, Borough of Brook-lyn, lowest bidder, same as above: 16,800 sq. yd. asphalt pavement, including binder course outside railroad area, .85c.; 6,560 sq. yds. asphalt pavement, including binder course, within railroad area, .85c.; 3,265 cu. yds. concrete for pavement foundation, \$4.50; 2,775 lin. ft. new curb, furnished and set in concrete, .90c.; 2,775 lin. ft. old curb, redressed, rejointed and reset in concrete, .55c.; 31 noiseless covers and heads complete for sewer manholes, furnished and set, each, \$14; total, \$39,707. Totals of other bids: Barber Asphalt Paving Co., 30 Church st., N. Y. City, \$47,074; Cranford Co., 52 9th st., Brooklyn, \$40,752; Uvalde Asphalt Co., 1 Broadway, N. Y. City, \$40,164.

**New York, N. Y.**—Asphalt block on Oak-land pl. from Belmont ave. to Prospect ave.: Lowest bidder, Barber Asphalt Paving Co., 2,285 sq. yds. asphalt block pave-ment and keeping same in repair for five years, \$1.67; 390 cu. yds. concrete, includ-ing mortar bed, \$6; 440 lin. ft. new curb, set in concrete, .86c.; 1,300 lin. ft. old curb, rejointed, recut on top and reset in con-crete, .35c.; total \$6,989. The Hastings Pavement Co. bid for the work \$7,245. As-phalt block on Grote st. from E. 182d st. to Southern blvd.: Lowest bidder, same company, 4,375 sq. yds. completed asphalt block pavement and keeping the same in repair for five years, \$1.66; 700 cu. yds. concrete, including motor bed, \$6; 200 lin. ft. new curb set in concrete, .86c.; 2,200 lin. ft. old curb recut and reset in con-crete, .35c.; total, \$12,404; the Hastings Pavement Co. bid \$12,595. Redressed gran-ite block pavement on concrete foundation, Brook ave. from Westchester ave. to 156th st.; lowest bidder, Asphalt Construction Co., as follows: 6,190 sq. yds. old granite blocks, taken up or supplied, redressed with new heads and relaid on a concrete foundation with Portland cement joints and keep in repair for one year, \$1.51; 987 cu. yds. concrete, \$2; 2,235 lin. ft. new granite curb, .50c.; 1,100 sq. ft. new granite bridge stone for crosswalks, .70c.; total, \$14,293; Atlanta Construction Co. bid \$16,102.

**Syracuse, N. Y.**—Paving Harrison st. in section which remains unpaved: Central City Paving Co. low on vitrified brick with

stone curb, \$12,017.60, and on asphalt with stone curb, \$11,811.10.

**Harrisburg, Pa.**—Paving (a) 23 sections of streets, 72,795 sq. yds., also (b) 51,139 sq. ft. of curbing: Barber Asphalt Paving Co., (a) Trinidad Lake sheet asphalt \$1.43 to \$1.63, (b) granite .78c., bound granolithic .45c., granolithic .30c.; Warner-Quinlan As-phalt Co., (a) \$1.70 to \$1.74, (b) .77c., .54c. and .40c.; Central Construction and Supply Co., (a) \$1.53 to \$1.72, (b) .74c., .46c. and .30c.; Filbert Paving and Construction Co., (a) \$1.68 to \$2.05, (b) .83c. to .95c., .55c. to .85c. and .38c. to .65c.; price for paving in-cludes excavation, 6-in. concrete base, 1-in. binder and 2-in. top; if granite web is in-cluded Barber Co. will pave 26,345 yds. while Central will get 46,455 yds.; Barber Co. will place 16,234 ft. of curbing and Central 34,905 ft.; Barber Co. was low on ten sections and Central was low on thirteen; not including curb, Barber Co. was low on all jobs.

**Steelton, Pa.**—Curbing to replace defec-tive parts laid by the company that paved Front st., Wallenbeck & Zerbe, \$1.25; Shoe-maker & Son, .70c.; J. H. Brown, .65c.; A. B. Smith, 57½c.; George W. Sutton, 50½c.; all bids per lin. ft.; all bids rejected.

## SEWERAGE

**Corning, Cal.**—W. F. Lining, Red Bluff, is preparing plans for water works and sewers; cost \$69,000.

**Highland Park, Ill.**—Council has passed ordinances for the construction of two sew-ers.—H. L. Bowen, Commissioner of Pub-lic Works.

**Vincennes, Ind.**—Bids will be received by the Board of Public Works, about Sept. 15, for the construction of a trunk sewer and pumping plant; project to be let in three sections or districts; cost, \$200,000.—Her-ing & Fuller, Consulting Engineers, New York City; C. L. V. Tucker, Clerk.

**Clinton, Ia.**—City Engineer Reuben C. Hart has been instructed by Council to make plans and estimates of cost for the construction of sewers in districts 3 and 4, estimated to cost \$90,000 and \$12,000, re-spectively.—W. E. Hayes, City Clerk.

**Keokuk, Ia.**—Bids will probably be re-ceived this fall for the construction of an 8-in. sanitary pipe sewer, 700 ft. and possibly 1,500 more.—J. F. Winters, City Engineer.

**Mt. Vernon, Ia.**—Iowa Engineering Co., Clinton, is preparing plans and specifica-tions for sewer system.

**Garnett, Kan.**—Bids will be received in about four weeks for sewers and sewerage purification work; cost \$50,000.—Burns & McDonnell, Scarritt Bldg., Kansas City, En-gineers.

**Columbus, Kan.**—The proposed election to construct main sewers and disposal plant, at an estimated cost of \$35,000, has been called off.—F. H. Hawkins, City Clerk; M. A. Earl & Co., Engineers, Flynn Ames Bldg.

**Pleasanton, Kan.**—Bids will be received in about four weeks for sewers and sew-erage purification works.—Burns & McDon-nell, Scarritt Bldg., Kansas City, Mo., En-gineers.

**Wichita, Kan.**—Preliminary surveys have been completed by Bert C. Wells, City En-gineer, for extension to present city drain-age canal to the Big Arkansas River; cost \$40,000.

**Baltimore, Md.**—North Forest Park Sew-erage Co. will install sewer system.—Thos. B. Marshall, President.

**Baltimore, Md.**—Property owners of Hampden have formed company and will at once install sewer system.—R. F. Reynolds, President.

**Govans, Md.**—Baltimore County Commis-sioners are considering extension of sewer mains.

**Gardner, Mass.**—Sewerage Commission-ers have purchased land at sewage purifi-cation plant for additional beds when needed.

**New Bedford, Mass.**—Wm. F. Williams, City Engineer, has presented to the State Board of Health plans for the proposed in-tercepting sewer.

**New Bedford, Mass.**—Board of Aldermen has approved plans by City Engineer Wil-iams for outlet of proposed intercepting sewer, out in Buzzard's Bay, 3,000 ft. from end of Clark's Point.

**Flint, Mich.**—City Engineer H. E. Perry is preparing plans for several short sewers, ranging in length from one to six blocks.

**Manistee, Mich.**—Council has been peti-tioned for construction of a main sewer in 8th st.

**Saginaw, Mich.**—Plans have been ordered for various sewers throughout city.

**Sandusky, Mich.**—Citizens have voted bonds for the construction of sewers in village.

**Willmar, Minn.**—Citizens have voted bonds for construction of sewer system.

**Columbus, Miss.**—City is considering con-struction of storm sewers in connection with other street betterments.—Charles Lyon Wood, Engineer.

**Dexter, Mo.**—Citizens will vote Sept. 6 on \$20,000 bond issue for construction of sewerage system; will install septic tank, 8 to 12-in. vitrified pipe sewers, 52 man-holes, 4 drop manholes, 11 flush tanks and 22 lampholes.—Fuller-Coult Co., Chemical Bldg., St. Louis, Engineers in Charge.

**La Platta, Mo.**—Plans are being prepared by Burns & McDonnell, Engineers, Scarritt Bldg., Kansas City, for sewers; bids will be received in October.

**Monroe City, Mo.**—Plans have been com-pleted for sewers and water works; cost \$70,000; bids will be asked in spring.—Burns & McDonnell, Scarritt Bldg., Kansas City, Engineers.

**Warrentown, Mo.**—Citizens voted \$25,000 bond issue for sewer and water system. Fuller-Coult Co., Chemical Bldg., St. Louis, Engineers.

**Fremont, Neb.**—Sewer system will be ex-tended in north side addition; cost \$4,700.

**Roosevelt, N. J.**—Bids will be asked for construction of new sewers in Carteret section.

**Sea Isle City, N. J.**—Citizens have voted \$80,000 bonds for improvements, including installation of sewage disposal plant.

**Albion, N. Y.**—The Sewer Committee is considering the construction of a sewer sys-tem.

**Rochester, N. Y.**—Bids for laying sewer on Humboldt st. were rejected.

**Schenectady, N. Y.**—Bids will be received for laying sanitary sewers in three streets.

**Utica, N. Y.**—City Engineer Cogley has presented plans for sewers in number of streets.

**Yorkville, N. Y.**—Plans and specifications for the construction of sewers have been accepted by Board of Trustees.

**Carrington, N. D.**—Plans of L. P. Wolfe, St. Paul, Minn., for sewage disposal sys-tem have been accepted.

**Circleville, O.**—City proposes to construct a storm water sewer to cost \$4,500 and sanitary sewers to cost \$15,000.—Sweetman & Stiles, Engineers.

**Delaware, O.**—Resolutions have been adopted by Council to construct sewer in Liberty and North Sandusky sts.

**Hamilton, O.**—Bonds, \$50,000, will be is-sued for sewer, \$50,000 for street improve-ment and \$5,950 for street bonds.—H. A. Grimmer, City Auditor.

**Lancaster, O.**—Bids will be received about November for the construction of sewers on west side; cost about \$4,300.—John N. Wolfe, City Engineer.

**Pleasant Ridge, O.**—Village will construct a sewerage system and sewage disposal plant; cost, \$175,000.

**Piqua, O.**—Council has passed a resolu-tion providing for the construction of a storm sewer in the north end of city to con-sist of 2,660 lin. ft. 48, 36 and 30-in. mono-lithic or reinforced pipe, 1,100 lin. ft. 24-in. pipe, 9 manholes and 20 catch basins.—A. Schroeder, City Engineer.

**McAlester, Okla.**—City will construct a septic tank.—J. M. Gannaway, City Clerk; J. Phelan, City Engineer.

**Muskogee, Okla.**—City Engineer T. P. Clouts is preparing plans for vit. pipe storm and sanitary sewers to cost \$100,000.—Charles Wheeler, Jr., City Clerk.

**Portland, Ore.**—Council has passed ordi-nance to construct proposed Riverside sewer with concrete pipe.

**Beaver Falls, Pa.**—A movement is on foot to have Patterson Heights, College Hill and New Brighton unite with Beaver Falls in the construction of a sewerage system and disposal plant.

**Dale, Pa.**—Council has passed ordinance providing for combined storm water sewer and sewage sewers in Von Linden rd. and in Hoffman alley.

**Nanticoke, Pa.**—Ordinance for construct-ing sewer on Grove st. adopted.

**North Wales, Pa.**—Construction of sewer system is being considered.

**Williamsport, Pa.**—Plans are being pre-pared for a storm sewer 6-ft. diameter on Penn st.; probable cost \$22,000.

**Norfolk, Va.**—Public Improvement Com-mittee of Council has appropriated \$20,962.50 for following work: Concrete drain from Cumberland to Granby st., \$13,752.50; concrete drain between Redgate and West-over aves. and extension of drain now on part of block between Westover and Gray-don aves. to across Armistead Bridge rd., \$4,860; concrete drain to and up part of Channel st. from Willoughby ave., \$2,350.—W. T. Brooke, City Engineer.

**Spokane, Wash.**—Council has approved plans for \$486,500 trunk sewer to drain Fourth and Fifth Wards.

**Grand Rapids, Wis.**—Bids will be received at once for 5,000 ft. of 40-in. vit. sewer pipe.—M. Gordon, City Clerk.

**Hamilton, Ont., Can.**—Board of Works has recommended that sewers be construct-ed for use of the Oliver Chilled Plough Works; cost \$9,000.

**Juarez, Mex.**—Mayor Portillo is consider-ing installation of sewage disposal plant.



## CONTRACTS AWARDED

**Little Rock, Ark.**—To James Trainor, Little Rock, for constructing a sewer in district No. 58, exclusive of septic tank, which will be built later, \$8,500.

**Newport, Ark.**—Noble & Gardner, Paducah, Ky., sewer system, \$40,000.

**Indianapolis, Ind.**—Sewer on Parkway blvd., to Marion County Construction Co., \$2 per lin. ft.; contract originally let to John E. Sullivan, \$1.73, but rescinded when work was not commenced promptly.

**Hutchinson, Kan.**—C. Howard, sewer, \$9,812; Davis & Everett, sewer, \$4,501.

**Ahmeek, Mich.**—Hiltunen & Wainio, city, for construction of sewer system, \$1,100; to Keckonen Hardware Co., for furnishing, \$1,616.

**Grand Rapids, Mich.**—Bids received for the construction of a sewer in Agnew ave.: Peter DeWitt, \$988.47; Vander Wele Bros., \$1,036.79; John J. Rens, \$866.40; Martin DeBoer, \$966.33; C. E. Williams, at \$1,828.90, was the only bidder for the improvement of Ransom pl.

**Akrone, Minn.**—Hiltunen & Wainio, constructing sewer, \$1,100; Keckonen Hardware Co., furnishing pipe, \$1,616.

**Grand Rapids, Minn.**—Construction of the lower end of Leland ave. sewer, to Grand Rapids Improvement Co., \$4,894; only other bidder, J. S. Lofberg, \$5,275; Engineer's estimate, \$3,822.

**Winnemucca, Nev.**—The following is an abstract of bids for constructing sewerage system as prepared by Louis C. Kelsey, Consulting Engineer, 402 Dooly Bldg., Salt Lake City, Utah; contract awarded to R. M. Barsden & Co., Butte, Mont.: Deep socket, standard pipe, R. M. Barsden & Co., \$31,944.85; Reno Construction Co., Reno, \$33,529.86; J. D. Hanley, Salt Lake City, \$33,609.27; Carty, Hartman & Morhan, city, \$34,774.05; Roberts Construction Co., Reno, \$37,262.16; Tibby & Forbes, Salt Lake City, \$39,970.45.

The following is the itemized bid of the successful bidder: Excavating and back filling, 18,130 yds. earth, 68c. per cu. yd.; 907 yds. gravel and boulders, 95c.; solid rock, \$3.50; vit. pipe, 13,470 ft. 8-in., 30c. per lin. ft.; 5,115 10-in., 40c.; 2,434 12-in., 50c.; 200 15-in., 75c.; 1,790 18-in., \$1.05; Y's, each, \$19.8 6-in., \$1.20; 290 10 x 6-in., \$1.35; 117 12 x 6-in., \$1.60; 4 15 x 6-in., \$2.30; 31 18 x 6-in., \$4.10; 57 manholes, \$57.50 each; 26 additional depth manholes, \$3.50 per lin. ft.; 9 flush tanks, \$95 each; 1 septic tank, \$3,500.

**Madison, N. J.**—Construction of about 12 miles of sewers from 8 to 18 inches diameter, with manholes, flushtanks and other appurtenances, and a small sewer ejector station, to Charles Ippolito, Orange, N. J., \$67,335. Other bidders: McNally, Weehawken, N. J., \$69,856; Jersey Paving Corp., \$70,529; Antonia Costa, Orange, \$70,761; D'Amico & Stefanelli, Newark, N. J., \$72,374; Hudson Terminal Construction Co., 50 Church st., New York, \$74,223; Donovan & Benson, Bayonne, N. J., \$78,728; Joseph B. O'Rourke & Co., Boston, Mass., \$81,369; Marrone Construction Co., New York, \$87,117; Joseph A. Christie, Newark, \$88,519; Martin & Miller, Roselle Park, N. J., \$88,524; Miele & Bruns, Newark, \$93,051; John McNabb, Bound Brook, N. J., \$96,777; Chas. Crawford, Brooklyn, \$101,139; Madson Construction Co., Long Beach, N. Y., \$108,081. Engineers' estimate, \$78,730. Hering & Fuller, 170 Broadway, New York, Engineers.

**Rochester, N. Y.**—Bert Waven, Honeoye, sewage disposal plant for County Tuberculosis Hospital, \$5,600.

**Utica, N. Y.**—Construction of sewer in North Genesee st., to A. W. Fitch, \$2,287.25; storm water sewer in Green st., to same, \$571.25.

**Chester, Pa.**—Edward Cross, 12-in. sewer in Morton st., \$1.59 per lin. ft.; W. Edward Reilley, 8-in. pipe sewer in Morton ave., \$1.59 per lin. ft.

**De Pere, Wis.**—Kegel & Decker for laying sewers in 2d and March sts.—W. R. Mathews, City Clerk.

**Minto, Ont., Can.**—To D. B. Campbell, of Strathroy, for constructing municipal drain No. 3 for Township, \$5,939.

**Swift Current, Sask., Can.**—Contract (a) calling for laying sewers and water mains, with manholes, etc., complete, to Laidlaw & MacDonald, Ft. William, Ont., \$39,180; contract (b) calling for construction of sewage disposal plant, to same company, \$8,299; other bids received were as follows: M. A. Pigot, Kenora, Ont., (a) \$49,737, (b) \$11,801; W. I. Gray & Co., Winnipeg, Man., (a) \$59,000; H. G. McDean, Moose Jaw, (a) \$62,673; Broley & Martin, Fernie, B. C., (a) \$71,535, (b) \$11,138; G. E. McManus & Son, North Battleford, (a) \$87,457.

## BIDS RECEIVED

**Laporte, Ind.**—Construction of sewers: (a) Tyler st., (b) K. st. Michael & Minnick's, Marion (a) \$14,196, (b) \$6,637; H. B. Holman, Rochester, (a) \$14,380, (b) \$6,384; O'Shea & Shea, Hammond, (a) \$15,092, (b) \$6,755; Foulks Contracting Co., Terre

Haute, (a) \$15,016, (b) \$6,418; Wm. Rheinhart, La Porte (b) \$6,389; Melton & Cutler, Gary, (a) \$14,802, (b) \$6,632; Rankert & Co., Mishawauka, (a) \$12,218, (b) \$5,857.

**Michigan City, Ind.**—Construction of proposed sewer in Holliday st., W. H. Bell & Co., 65c.; August Schneider, 66½c., and J. E. Southard, 95c. per lin. ft.

**Saugus, Mass.**—Furnishing and laying about 12,700 ft. of 10, 8 and 6-in. standard c.-i. water pipe, two 10-in., two 8-in. and five to ten 6-in. standard gate valves, five to ten hydrants of approved make, nine to fourteen telescopic iron gate boxes and covers: Joseph P. Rourke & Co., 10-in. pipe, \$1.45 per ft., 8-in. \$1.15, 6-in. \$1.10, gate valves, 10-in. \$30, 8-in. \$25, 6-in. \$20, hydrants \$75; James T. Russo, 10-in. \$1.67, 8-in. \$1.17, 6-in. \$1.26, gate valves, 10-in. \$30, 8-in. \$22, 6-in. \$15, hydrants \$33, gate boxes \$5. Byrne Contracting Co., 10-in. \$1.82, 8-in. \$1.59, 6-in. \$1.39, gate valves, 10-in. \$30, 8-in. \$20, 6-in. \$12, hydrants \$35, gate boxes \$4; Jose Morrell, 10-in. \$1.02, 8-in. 96c., 6-in. 77c., gate valves, 10-in. \$49.60, 8-in. \$29.50, 6-in. \$8, hydrants \$31.50, gate boxes \$3.25; Coughlan & Shields Co., 10-in. \$1.39, 8-in. \$1.15, 6-in. 84c., gate valves, 10-in. \$30, 8-in. \$21, 6-in. \$15, hydrants \$33, gate boxes \$6, rock excavation at \$3.50 per cu. yd.; Coleman Bros., 10-in. \$2.07, 8-in. \$1.67, 6-in. \$1.35, gates, 10-in. \$25, 8-in. \$25, 6-in. \$12, hydrants \$40, gate boxes \$6, rock excavation \$5 per cu. yd.; H. D. Hall & Co., 10-in. \$1.84, 8-in. \$1.60, 6-in. \$1.48, gates, 10-in. \$25, 8-in. \$20, 6-in. \$12, hydrants \$41.50, boxes \$5; Thomas Fitzgibbons, 10-in. \$1.66, 8-in. \$1.43, 6-in. \$1.20, gate valves, 10-in. \$27.50, 8-in. \$22.50, 6-in. \$17.50, hydrants \$40, gate boxes \$6; Thomas Bruno, 10-in. \$1.80, 8-in. \$1.50, 6-in. \$1.50; no figures on balance of contract; George F. West, 10-in. earth ditch, \$1.30, boulder ditch \$1.60, 8-in. earth \$1. boulder \$1.30, 6-in. earth 80c., boulder \$1.10, hydrants \$55, gate valves, 10-in. \$30, 8-in. \$20; H. G. Porter, 10-in. \$2.24, 8-in. \$1.77½, 6-in. \$2.54½; no figures on balance of contract; John E. Palmer, 10-in. \$1.30, 8-in. 90c., 6-in. 75c., gate valves, 10-in. \$27, 8-in. \$18, 6-in. \$12, hydrants, \$38, gate boxes \$4, excavation at \$4.50 per cu. yd.; W. B. Byrne, 10-in. \$1.29, 8-in. \$1.1, 6-in. 70c., gate valves, 10-in. \$27, 8-in. \$18, 6-in. \$12, hydrants \$32, gate boxes \$3.75; rock excavation at \$4.50 per cu. yd.; in the specifications there was no item calling for bids on the excavation and some of the bidders added while others did not refer to it.

**Amsterdam, N. Y.**—Construction of sewers, M. Sollecito, lowest bidder, \$3,271; 960 ft. 24-in., \$1.59; 160 ft. 15-in., 95c.; 970 ft. 10-in., 59c.; 5 manholes, \$44; 4 catch basins, \$35; I. C. B., \$45; four other bidders.—F. E. Crane, City Engineer.

**New York, N. Y.**—Constructing sewers in Hoe, Vyse and other streets in Bronx Borough; lowest bid was that of the Stanton Construction Co., 762 E. 165th st., as follows: 261 lin. ft. pipe sewer, 18-in., \$8,229.7 lin. ft. pipe sewer, 15-in., \$5.50; 5,815 lin. ft. pipe sewer, 12-in., \$4.50; 1,100 spurs, each, \$1; 85 manholes each \$50; 9 receiving basins, each \$150; 8,450 cu. yds. of rock excavation, \$1; total \$56,039. Totals of other bids: Perrillo & Shell, Williamsbridge, \$57,490; Del Balso Contracting Co., 1481 Hoe ave., \$66,340; Briggs & McLaughlin, 1007 Union ave., \$68,638; Marrone Contracting Co., 326 E. 116th st., \$61,178; P. J. Brennan, 244 Mt. Hope pl., \$62,890; Jos. Burns, 142 E. 125th st., \$62,497; B. C. Murray, \$69,618; Anita Construction Co., 2975 Marion ave., \$60,058.

## WATER SUPPLY

**Albertville, Ala.**—Citizens have voted \$25,000 bonds for construction of water works.

**Ensley, Ala.**—Jefferson County Board of Revenue is considering construction of septic tank for purification of water supply.

**Montgomery, Ala.**—City will lay about 18 miles of water piping, including 6-in. main on Cleveland ave. and mains for furnishing South Highland court and other parts of city with water; cost, \$70,000.—A. R. Gilchrist, City Engineer.

**Corning, Cal.**—W. F. Lining, Red Bluff, is preparing plans for water works and a system of pipe sewers; cost about \$69,000.

**Oceanside, Cal.**—Plans have been prepared for new water mains; cost \$17,000.

**Ontario, Cal.**—F. E. Trask, Los Angeles, is preparing plans for water works; cost \$125,000.

**Porterville, Cal.**—City Trustees are considering \$25,000 expenditure for an auxiliary water plant consisting of 500,000-gal. reservoir and larger distributing mains.

**San Bernardino, Cal.**—The Mill Creek Pipe Line and Reservoir Co., has been incorporated with a capital of \$50,000 to build larger reservoirs for the Mission district between San Bernardino and Redlands.

**Chicago, Ill.**—North Shore Sanitary Association has recommended water supply for north shore suburbs.

**Flora, Ill.**—It is proposed to construct water works and a sewer system; cost \$87,000.

**Decatur, Ill.**—Engineer D. W. Mead has prepared plans for \$6,000 dam at water works.

**New Athens, Ill.**—Village Trustees are considering construction of water works.

**Paris, Ill.**—City is considering construction of filtration plant; cost \$40,000.

**Quincy, Ill.**—Bids will be received by Citizens' Water Works Co. for construction of a new pumping building; cost, \$10,000.—W. R. Gelston, Superintendent; Daniel W. Mead, Madison, Wis., Consulting Engineer.

**Westfield, Ill.**—Town Board is considering proposition of putting in new water plant and tower.

**Cambridge City, Ind.**—Citizens have voted \$7,000 bonds to improve water and light plant; work will begin at once.

**Jeffersonville, Ind.**—The Jeffersonville Water, Light and Power Co. has petitioned Council for permission to lay 12-in. mains.

**Alford, Ia.**—Election will soon be held on \$4,000 bonds for water works extensions.

**Mulvane, Kan.**—Bonds, \$30,000, voted for water works.

**Oakley, Kan.**—Plans and specifications have been completed for water works and light plant; cost \$40,000; bids will be received as soon as plans have been approved by State Board of Health.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., Engineers.

**Onega, Kan.**—Plans and specifications are in progress for water works; estimated cost \$20,000.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., Engineers.

**Henderson, Ky.**—Water Commissioners have appointed committee to investigate cost of filter plant.—C. A. Hart, Secretary.

**Baltimore, Md.**—Plans for construction of a filtration plant big enough to purify entire water supply are now being drafted by Water Department, while experimental station, to determine possibilities of such a plant, is now being built at Loch Raven.

**Cumberland, Md.**—Mayor George G. Young has investigated water system that is being installed in Parkersburg, W. Va.; when plans are adopted they are to be submitted to vote of the people and the ratification carries bond issue of \$500,000 for new plant.

**Bessemer, Mich.**—W. G. Kirchoffer, Madison, Wis., will investigate question of a new water supply.

**Hancock, Mich.**—Establishment of water system at cost of \$23,000 is being considered.

**Marquette, Mich.**—Hering & Fuller, New York, N. Y., have been selected as engineers for the improvements contemplated to the water works.

**Farmington, Minn.**—Citizens have voted \$10,000 bonds for construction of water works.

**Cleveland, Miss.**—An election will be held to vote on the question of constructing water works, to cost \$15,000 to \$20,000.

**Osyka, Miss.**—Citizens have voted \$20,000 bonds to install water and electric light system; plans drawn.

**Harlowton, Mont.**—Citizens have voted \$15,000 bonds for water works.

**Monroe City, Mo.**—Plans and specifications have been completed for water works and sewers; cost \$70,000; bids will be asked in spring.—Burns & McDonnell, Scarritt Bldg., Kansas City, Engineers.

**Warrenton, Mo.**—Citizens have voted \$25,000 bonds for water and sewer system. Fuller-Coult Co., Chemical Bldg., St. Louis, Engineers.

**Perth Amboy, N. J.**—Water mains, 14 and 24-in., in South Amboy meadows, will be elevated on concrete filling during year; Water Commissioners are considering laying 24-in. water main under Raritan River. Address City Engineer Mason.

**Keene, N. Y.**—Plans are being prepared for a new water supply system; it is proposed to dam Ore Bend Creek; cost \$10,000.

**Niagara Falls, N. Y.**—Engineer W. D. Robbins has estimated cost of laying water mains in La Salle ave. at \$2,700.

**Rockville Centre, N. Y.**—Village Trustees have instructed clerk to ask for bids for installation of a 1,000,000-gallon pump at pumping station to be operated either by steam or electricity.

**Schenectady, N. Y.**—Bids will be received for laying water mains in eleven streets.

**Silver Springs, N. Y.**—Bids will be received Aug. 22 for the purchase of \$14,000 bonds for water works improvements.

**Akron, O.**—Council has passed ordinance providing for \$10,000 bond issue for purpose of employing an expert hydraulic engineer to have plans prepared for new water plant and to make estimate of cost of plant; he will also look for a new source of supply.

**Cleveland, O.**—Water Works Superintendent Smith has demanded the immediate

purchase of two 25,000,000-gal. pumps for the Kirtland station.

**New Carlisle, O.**—Village will soon vote as to whether the town shall be provided with water works system.

**New Philadelphia, O.**—The citizens have voted to issue \$130,000 bonds to purchase the plant of the New Philadelphia Water Works Co.

**Carmen, Okla.**—Citizens will vote Aug. 29 on \$15,000 additional revenue to extend water works and electric lights.

**Mansville, Okla.**—Citizens have voted \$20,000 bonds for construction of water works.

**Jacksonville, Ore.**—Citizens have voted \$30,000 bonds for construction of gravity system of water works.

**Aitken, S. C.**—The citizens have voted to issue \$78,000 bonds for water works.

**Belton, Tex.**—City is considering drilling additional artesian well; will vote on bonds.

**Floresville, Tex.**—City will install engine and air compressor in water works plant.

**Terrell, Tex.**—Citizens have voted \$10,000 water works and electric light bonds.

**Ephraim, Utah.**—Citizens will vote on bonds Sept. 9 for water works system; R. E. Caldwell, Engineer, has made following estimates; system with c.-i. pipes, \$83,000; riveted steel pipes, \$38,000; wood stave pipes, \$33,000; he recommended use of wood stave pipes.

**Murray City, Utah.**—Bids will be received Aug. 30, 7.30 p. m., for \$20,000 water works bonds.—W. J. Warenski, City Recorder.

**Fredericksburg, Va.**—Council has appropriated \$8,313.94 for extension of water mains in lower and western section of city.

**La Crosse, Wis.**—Council has voted to submit to people at fall election plan to issue \$250,000 bonds for city water plant; project is to lay mains from the Mississippi River into a sedimentation bed; plant will cost \$307,000.

**Oshkosh, Wis.**—An election will be held Nov. 8 to vote on municipal ownership of water works.

**Ripon, Wis.**—Question of a new water supply is being investigated here by Engineer W. G. Kirchoffer, Madison.

**Schlesinger, Wis.**—Election will be held Aug. 30 for issuing \$5,000 bonds for water works.

**Montreal, Que., Can.**—Superintendent Janin, of Water Department, has estimated cost of providing improved water service in new wards at \$250,000.

**Moose Jaw, Sask., Can.**—City proposes to construct filter.—J. M. Wilson, City Engineer.

**Lethbridge, Alta., Can.**—City proposes to expend \$144,000 for water mains and new sewer extensions; work will be done by day labor.—C. M. Arnold, City Engineer.

### CONTRACTS AWARDED

**Ft. Barry, Cal.**—Constructing reservoir, wooden tank, extending mains, etc., at fort, to A. L. Chambers, 624 Walsworth ave., Oakland, \$7,159.

**San Francisco, Cal.**—To Oscar S. Levy, for testing, hauling and laying pipe for auxiliary water supply system in the Mission District, \$52,000.

**Denver, Col.**—To Holme & Allen Pipe and Construction Co., for constructing proposed extension of city water distributing system in South Denver, \$14,142.

**Grand Valley, Col.**—Construction of water works, to D. G. Gordon, Pueblo, \$26,000.

**Johnstown, Col.**—Fairbanks-Morse Co., building water works, \$12,000.

**Gooding, Ida.**—To D. Grant & Co., Fairbault, Minn., for constructing 20 miles of canal, a high dam and reservoir.

**Dundee, Ill.**—Furnishing and laying about 12,840 ft. of from 6 to 4-in. c.-i. water mains with 30 hydrants, 23 6-in., 5 4-in. valves, etc., from plans of W. S. Shields Engineering Co., Hartford Bldg., Chicago, to C. H. Iglehart, Chicago, \$10,694.

**Dysart, Ia.**—To National Construction Co., South Bend, Ind., for constructing water works, \$18,045; town will purchase material.

**Chelsea, Mass.**—Laying 1,080 ft. of 36-in. and 730 ft. 30-in. cast-iron water pipe at Chelsea to Michael Russo, 240 North st., Boston, \$9,751. Other bidders: L. Devincenzi & Co., Boston, \$10,560; Coleman Bros., Boston, \$12,081; Bryne Contracting Co., Boston, \$12,939; John E. Palmer, Boston, \$13,321; Thomas Bruno, Revere, \$13,484; Charles M. Callahan, Boston, \$13,516; John J. Falvey, Somerville, \$14,304; Commonwealth Construction Co., Boston, \$14,728.—Dexter Brackett, Chief Engineer.

**Dalton, Mass.**—Laying 12,350 ft. 10-in. water pipe, to Ford & Parker, \$24,000; gate valves to same, for one 12-in., and to Ludlow Valve Co., two 10-in. and seven 4-in.; furnishing 350 tons 10-in. c.-i. pipe, to Ford & Parker, using material of Utica Pipe Co.

**Duluth, Minn.**—St. Paul Foundry Co., water tank, \$3,124.

**Minneapolis, Minn.**—To U. S. Cast Iron Pipe & Foundry Co., 217 La Salle st., Chicago, for 60,000 ft. of water pipe, con-

sisting of about 6,000 tons, at \$24 to \$24.50 per ton total cost, about \$150,000.—Andrew Rinker, City Engineer.

**Slater, Mo.**—Bids were received Aug. 9 for water works extension and improvements; general contract to Jos. Bortenlanger, city.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., Engineers.

**Alliance, Neb.**—Katz-Craig Contracting Co., Omaha, extending water system, \$19,200.

**Kearny, N. J.**—To John Fox & Co., 253 Broadway, New York City, N. Y., for carload of 6-in. pipe, \$23.20 per ton.

**Columbus, O.**—Cast iron pipe and special castings: (a) Cast iron pipe, delivered on line of work, (b) same, f. o. b. cars at factory; (c) special castings, delivered on line of work; (d) f. o. b. factory to U. S. C. I. Pipe & Foundry Co., New York City; (a) \$24, (b) \$23.25, (c) \$55, (d) \$53. Jas. B. Clow & Sons, Chicago, Ill., (b) \$25.35, (d) \$50; Lynchburg Foundry Co., Lynchburg, Va., (b) \$23.85, (d) \$50; all prices per ton of 2,000 pounds.

**Waverly, O.**—Constructing standpipe and connections, to J. H. Barr, Batavia, \$4,354.

**Joseph, Ore.**—To James M. Mitchell, city, for constructing water works, \$16,800.

**Emporium, Pa.**—Reservoir for Emporium Water Co., also laying three miles of 12-in. c.-i. pipe, to Applegate & Son, Alliance, O., \$40,000.

**Seattle, Wash.**—Pacific Steel Furniture Mfg. Co., fence around Green Lake reservoir, \$4,635.

### BIDS RECEIVED

**Baltimore, Md.**—Furnishing and installing pumping station for pipe line system on South, near Pratt st., Benjamin E. Bennett Building Co., 123 S. Howard st., only bidder, for \$148,000.

### LIGHTING AND POWER

**Grannis, Ark.**—John P. Logan and A. Coyle are interested in project to organize company to establish electric light plant.

**Lodi, Cal.**—The Water and Light Department is considering installation of series arc circuit in business section with possibly a series Tungsten circuit in residence section.—J. A. Henning, Superintendent.

**Los Angeles, Cal.**—Bids have been called for by the Board of Supervisors for furnishing lights for the Sherman lighting district.

**Merced, Cal.**—The San Joaquin Light & Power Co. will build entire electric lighting system.—E. J. Crawford, Fresno, Superintendent.

**San Diego, Cal.**—Citizens have defeated municipal ownership of gas and electric plant.

**Decatur, Ill.**—Bids on \$75,000 lighting bonds will be asked about middle of next month.

**Middletown, Ind.**—A. McWilliams, Chicago, Ill., is preparing plans for proposed electric light plant; cost about \$10,000.—F. A. Wischart, Town Clerk.

**Belle Plaine, Ia.**—Citizens have voted to grant H. R. Mosnat franchise for water gas plant; 6 miles of gas mains will be laid; cost \$30,000.

**Clarion, Ia.**—City has voted to sell electric light plant.

**Magnolia, Ia.**—Bonds to amount of \$8,000 have been subscribed by citizens to construct electric light line from Missouri Valley.

**Muscataine, Ia.**—Council is considering construction of municipal electric light plant.

**McPherson, Kan.**—Architects Kelso, Mann & Kelso, of Hutchinson, are preparing plans for electric light plant to replace the plant recently burned; cost \$20,000.—W. O. Scothorn, Consulting Engineer.

**Oakley, Kan.**—Plans have been completed for lighting plant and water works; cost \$40,000; bids will be received as soon as plans have been approved by State Board of Health.—Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., Engineers.

**Sylvia, Kan.**—The electric light plant has been destroyed by fire.—J. B. C. Cook, Stafford, is owner.

**Wamego, Kan.**—City is considering installing at municipal electric light plant 150 or 200-kw. generator.—D. A. Course, Superintendent.

**Thibodaux, La.**—G. U. Borde will prepare plans for the proposed municipal electric light plant, including three 60 or 75-kw units a. c., with oil engines direct-connected; cost \$40,000.

**Muskegon, Mich.**—Because \$75,000 is not considered enough, city will likely abandon project to build municipal lighting plant.

**Aurora, Minn.**—Three blocks of business section will be lighted by six standards in each block.

**Hokah, Minn.**—A. Foster, 1603 Charles st., La Crosse, Wis., is interested in rebuilding of dam.

**Rochester, Minn.**—John C. Crabb, President Public Utility Board, would like to

correspond with parties interested in the work of placing wires underground and installing iron posts for suitable lighting.

**Rolla, Mo.**—It is proposed to extend the municipal lighting system, to take in that portion of the city recently added to corporate limits, to include several miles of wire and poles.

**Reno, Nev.**—Truckee River General Electric Company intends to immediately begin building immense dam in the Truckee River near Verdi.

**Seward, Neb.**—Burdette Boyes, Seward, has applied to State Engineer for water right requisite for the erection of a hydro-electric plant on Blue River, three miles below Milford; work will cost about \$60,000.

**Mendham, N. J.**—Bernards Water Co. has applied to the Borough Council for franchise to furnish electricity.—P. J. Brissler, Bernardsville, Chief Engineer.

**Sea Isle City, N. J.**—Citizens have voted \$80,000 bonds for improvements, including installation of gas plant.

**Akron, O.**—Council is considering ordinance for issuance of \$27,000 bonds for purpose of leaving city conduct its own lighting business; contract with Cleveland Vapor Lighting Co. expires Sept. 7.

**West Carrollton, O.**—Issue \$20,000 bonds for electric light and water plant carried.

**Kingfisher, Okla.**—City is considering installation of either a series tungsten or an arc system for street lighting.—V. H. Francis, Superintendent Water and Light Department.

**Crescent, Ore.**—Dr. N. E. Winnard, Heppner, is interested in construction of electric light plant.

**Pulaski, Tenn.**—City is considering plans for increasing output of the municipal electric light plant.—H. M. Grigsby, Chairman Light Committee.

**Tellico Plains, Tenn.**—Tellico River Power Co. will install proposed plant at about \$400,000; prices on concrete reinforced flume pipe or steel flume pipe desired.—C. F. Herford, Agent.

**Flaton, Tex.**—T. M. Spinks, city, and Professors F. C. Bolton and Dr. J. C. Blake, A. E. M. College, Starkville, Miss., have been granted franchise to install lighting plant.

**Houston, Tex.**—Construction of new gas plant for Houston Heights by the Suburban Gas Co. will be under the supervision and direction of W. H. Hammon, Pittsburg, Pa.

**Terrell, Tex.**—Citizens have voted \$10,000 electric light and water works bonds.

**Norfolk, Va.**—Chief Electrician R. A. Smith has recommended installation of modern switchboard at fire headquarters and construction of new underground cable work.

**Williamstown, W. Va.**—County Court of Wood County has granted a franchise to West Virginia-Ohio Gas & Fuel Co. to maintain gas line from Williamstown to Parkersburg.

**Evanson, Wyo.**—C. H. Solier has petitioned State Engineer for an appropriation of 50 ft. of water on east fork of Bear River in Summit County; 300 to 600-h.p. will be generated.

### CONTRACTS AWARDED

**New Albany, Ind.**—To Public Utilities Co., for lighting streets for a period of 10 years, beginning Sept. 1, \$52.40 per lamp per year.

**Paullina, Ia.**—Fogg & Ryan, building municipal lighting plant, \$12,000.

**Scranton, Pa.**—To Ludwig Slipp, Scranton, for reconstructing river boiler plant and new mains for steam plant of Scranton Electric Co.; total cost of work about \$50,000.

**Saskatoon, Sask., Can.**—Contract for a 250-h.p. water tube boiler, to the Robb Engineering Co., Ltd., of Amherst, N. S., \$4,200.

### BIDS RECEIVED

**Melrose Park, Ill.**—Construction of electric light plant, Keystone Engineering Co., Pittsburg, Pa., \$55,990, for plant complete; R. R. Street & Co., \$58,000, for complete work, and B. M. Osburn Co., \$28,500, for sections 1 and 2 only.

### FIRE EQUIPMENT

**Alturas, Cal.**—A fire company will be organized. C. H. Dunlop, Clerk of Town Board of Trustees, is interested.

**San Francisco, Cal.**—Board of Works will consider erection of \$4,500 fire house at Pier 25, Lombard and Greenwich sts.

**Augusta, Ga.**—Work will begin at once on section of fire house at Fifteenth st. and May ave.

**Ottumwa, Ia.**—Herman Bremhorst, Chairman, Fire Department Committee, contemplates purchasing a hose wagon in the fall or next spring.

**Bronson, Kan.**—A public meeting appointed committee to report on plans for better fire protection.